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North Carolina Department of Transportation
Statewide Planning Branch
Systems Planning Unit

THOROUGHFARE PLAN TECHNICAL REPORT

for

LENOIR COUNTY

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Thoroughfare Plan
for
Lenoir County

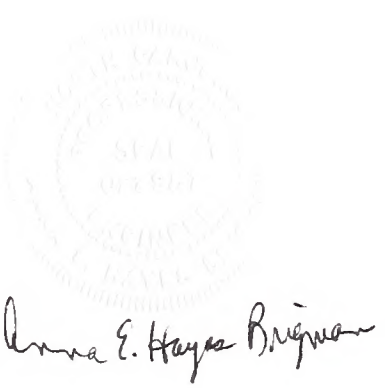
Prepared by the:

Statewide Planning Branch
Division of Planning and the Environment
N. C. Department of Transportation

In Cooperation with:

Lenoir County
The Federal Highway Administration
U. S. Department of Transportation

January, 1999



Acknowledgments

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Executive Summary

In January of 1995, Lenoir County requested thoroughfare planning assistance from the Statewide Planning Branch of the North Carolina Department of Transportation. The resulting Lenoir County Thoroughfare Plan (refer to **Figure 1, page 9**) was developed using the thoroughfare planning principles described in **Appendix A** of this report. It is based on current land use, economic (including the projected effect of the Global Transpark), population, and traffic trends; environmental impacts; and local input. Traffic projections for the year 2020 were used to determine capacity deficiencies on area roads.

This report documents the findings of the study and the resulting recommendations (refer to **Figure 2, page 15**). It includes recommendations for thoroughfare cross-sections, cost estimates and benefit evaluations for the recommended improvements, and recommendations for plan implementation.

Following several meetings with the Lenoir County Planning Board, the Lenoir County Transportation Committee, and the Lenoir County Board of Commissioners (refer to **Appendix C**), a public hearing was held on February 2, 1998. No comments were received from the public. Following the public hearing, the Lenoir County Board of Commissioners unanimously adopted the Lenoir County Thoroughfare Plan dated November 3, 1997. The North Carolina Board of Transportation followed with adoption of the plan on June 5, 1998.

Initiative for plan implementation will rest largely with the policy boards and citizens of the area. Highway needs throughout the State exceed available funding. Therefore, local areas should aggressively pursue funding for desired projects.

It should be emphasized that the recommended plan is based on anticipated growth and development of the planning area as indicated by current trends and land use. Prior to construction of specific projects, a more detailed study will be required to reconsider development trends and to determine specific design requirements.

Table of Contents

	Page
I. Introduction	1
II. Thoroughfare Plan	3
Thoroughfare Plan Recommendations	11
Construction Priorities	11
III. Implementation	17
State and County Adoption of the Thoroughfare Plan	17
Corridor Preservation	17
Funding Sources	18
IV. Trends and Related Issues	21
Land Use	21
Economic Trends	21
Population Trends	22
Vehicle Registration	22
Travel Demand	23
V. Travel Deficiency Analysis of the Existing System	31
Capacity Deficiency Analysis	31
Accident Locations	37
Deficient Bridges	37
VI. Environmental Concerns	39
Wetlands	39
Threatened and Endangered Species	40
Historical Sites	40
Appendix A: County Thoroughfare Planning Principles	A-1
Appendix B: Thoroughfare Plan Street Inventory and Recommendations	B-1
Appendix C: Public Involvement	C-1
Appendix D: Urban Area Thoroughfare Plans	D-1
Appendix E: TIP Project Locations	E-1
Appendix F: Index of Secondary Road Names	F-1
Appendix G: Glossary of Technical Terms	G-1

Figure		Page
1	1998 Lenoir County Thoroughfare Plan	9
2	Recommended Improvements	15
3	Economic Trends	25
4	Population Trends by Township	26
5	Vehicles Per Person	27
6	1994 Average Daily Traffic Counts	29
7	Level of Service	33
8	2020 Capacity Deficiencies	35
9	Environmental Mapping	43
10	Schematic Illustration of Functionally Classified Rural Highway Network	A-3
11	Typical Cross Sections	B-7
12	1997 Grifton Thoroughfare Plan	D-3
13	1981 Kinston Thoroughfare Plan	D-5
14	1993 La Grange Thoroughfare Plan	D-7
15	1992 Pink Hill Thoroughfare Plan	D-9
16	TIP Project Locations	E-3

Table		Page
1	Probability Estimation Guide	11
2	Environmental Considerations	12
3	Lenoir County Thoroufare Plan Cost Estimates, Benefits, and Probable Impacts	13
4	Population Trends and Projections	22
5	Accident Locations	27
6	Structurally Deficient Bridges	37
7	Functionally Obsolete Bridges	38
8	US 70 Control of Access Alternatives Analysis	41

Chapter 1
Introduction

A well planned transportation system plays a vital role in our economy and way of life. It provides the means to transport people and goods from one place to another quickly and conveniently. A good highway system must not only meet existing travel demands, but must also keep pace with the development of the region. Recognizing the importance of such a system, in January, 1995 Lenoir County requested thoroughfare planning assistance from the Statewide Planning Branch of the North Carolina Department of Transportation.

This report documents the findings of the Lenoir County study and the resulting recommendations. The report includes recommendations for thoroughfare cross-sections, cost estimates and benefit evaluations for the recommended improvements, and recommendations for plan implementation. It is intended to serve as a reference for future transportation studies and a mutual guide between Lenoir County and the Department of Transportation for the implementation of the adopted Thoroughfare Plan.

The proposed system of thoroughfares was developed following the principles of county thoroughfare planning outlined in **Appendix A** of this report. Since this is a mutually adopted plan, concessions and compromise slightly altered the technically recommended plan in favor of one that addressed economic, cultural, social, and environmental needs as well. These negotiations resulted in the mutual adoption of the Lenoir County Thoroughfare Plan dated, November 3, 1997, by the Lenoir County Board of Commissioners on February 2, 1998 and by the North Carolina Board of Transportation on June 5, 1998.

It should be emphasized that the recommended plan (see **Figure 1, page 9**), is based on anticipated growth and development of the County as indicated by current trends. Prior to construction of specific projects, a more detailed study will be required to reconsider development trends and to determine specific design requirements.

Chapter 2
Thoroughfare Plan

A thoroughfare planning study identifies existing and future deficiencies in the transportation system, as well as uncovers the need for new facilities. The thoroughfare plan also provides a representation of the existing highway system by functional use. This use is based on the Federal Functional Classification System. The Functional Classification process groups roads and highways into classes according to the type of service they provide. The most recent update of the federal system was due to Section 1006 of the Intermodal Surface Transportation Efficiency Act (ISTEA) which specified that each state reclassify the roads. A full description of these classifications is presented in **Appendix A**.

The 1997 Lenoir County Thoroughfare Plan was developed based on the federally mandated Functional Classification System; economic, population, and traffic growth trends; North Carolina Global Transpark projections; characteristics of the existing street system; and environmental concerns. The Statewide Planning Branch of the North Carolina Department of Transportation worked in cooperation with the Lenoir County Planning Board and the Lenoir County Transportation Committee to develop this Plan. It is the goal of this study that the recommended Plan set forth a transportation system that will serve the anticipated traffic and land development needs for Lenoir County. The following is a summary of the resulting 1997 Lenoir County Thoroughfare Plan as shown in **Figure 1**. (For recommendations in the urban areas refer to **Appendix D**.)

Thoroughfare Plan Recommendations

Proposed US 70 Bypass

- **Project Recommendation:** It is recommended that a controlled-access freeway be constructed on new location from the existing controlled-access section of US 70 at La Grange to the existing controlled-access section at Dover in Jones County. This facility will have interchanges at both connections with existing US 70, the proposed Crescent Road extension, NC 11/NC 55, US 258, and NC 58.

  Note: *This recommendation is currently being studied as part of TIP Project R-2553. Please contact the NCDOT's Planning and Environmental Branch for the most up to date information on this project.*

- **Transportation Demand:** This freeway has been proposed in response to both the increasing traffic in and around Kinston and the projected growth of the Global Transpark. This facility will provide for trips around Kinston as well as providing the first step to freeway access to the Global Transpark.

US 70 serves as a major east-west route for eastern North Carolina through-traffic. This corridor connects Raleigh to Morehead City, providing access to I-40, I-95, and the Port of Morehead City. The facility will also serve the Global Transpark.

- **Capacity:** US 70 through Lenoir County is currently non-control of access with the exception of the LaGrange Bypass. 2020 traffic volumes along this corridor are projected to range from 25,000 vehicles per day to 70,000 vehicles per day. TIP Project R-2553 (Kinston Bypass) will help reduce the traffic volumes along the existing US 70 Corridor in Kinston. However, the remaining traffic on the County segments of US 70 also needs to be addressed. Because Lenoir County does not have land use controls, it is expected that the strip development along existing US 70 will continue to deteriorate the corridor's intended capacity.

- **Safety Issues:** If the US 70 controlled-access bypass is not built, congestion and delay will continue to increase into the design year. Safety conditions will also continue to decrease due tothe previously mentioned conflict between "local" and "through" travelers. In the past three years, 409 accidents have occurred along this corridor, including 2 fatalities. The majority of these were rear end accidents or involved running off the road to avoid a rear end accident. These type of accidents can be attributed to congestion and start-stop conditions associated with numerous traffic signals. Safety conditions are expected to worsen as the existing facility becomes more congested.

  Typically, a controlled-access facility route will have fewer accidents than an uncontrolled facility. Statewide statistics show an accident rate of 251.6 accidnts per 100 million vehicle miles (MVM) on uncontrolled US urban US highways, while a similar fully access-controlled highway has only 102.7 accidents per 100 MVM. In a addition, the new facility will help to reduce congestion and the potential for accidents by providing an alternate route for through-travelers.

- **Social Demand / Economic Development:** Because of the road's lack of access control, US 70 has been heavily strip developed within the Kinston city limits and along much of the corridor between LaGrange and Kinston. These developments typically have driveway access directly onto US 70, reducing the capacity of the route and providing opportunities for an increase in number of accidents. Because Lenoir County has no form of land use control, this type of strip development is expected to continue.

- **System Linkage:** US 70 is part of the North Carolina Intrastate System. The legislation which established the Intrastate System states that the system is intended to provide high-speed, safe travel service throughout the State. This legislation also states that all segments of the Intrastate System shall have at least four travel lanes and, when warranted, shall have vertical separation or interchanges at crossings,

more than four travel lanes, or bypasses (*Transportation and Highway Laws of North Carolina*, 1991, sec. 178). Because of the important role US 70 plays on a statewide basis, it is imperative that the highway be kept in good operating condition. A full control-of-access bypass would fulfill this need.

- **Modal Relationships:** US 70 provides access to the Port of Morehead City. Coupled with TIP Project R-2719 (Crescent Road) US 70 will be the first step in providing freeway access to the Global Transpark and the Kinston Regional Jetport.

Perimeter Road

- **Project Recommendation:** It is recommended that a controlled-access freeway be constructed on new location from the proposed US 70 Goldsboro Bypass (TIP Project R-2554) to US 258. Perimeter Road is currently listed as an identified future need in the *1998-2004 Transportation Improvement Program* (TIP Project R-3331).

- **Transportation Demand:** Perimeter Road has been proposed in response to projected growth of the Global Transpark. This facility will provide for trips directly to and from the Global Transpark and will help relieve the Kinston street system of Global Transpark traffic (refer to *North Carolina Global Transpark: Documentation of Travel Demand Model.* It will provide freeway access to the Global Transpark from the west.

- **Capacity:** Perimeter Road is expected to carry approximately 15,800 vpd by 2020. This projection is based on an estimated 25,000 employees in the Global Transpark.

US 70

- **Project Recommendation:** It is recommended that US 70 be widened to six lanes from the interchange with the proposed US 70 Bypass to the Kinston Planning Area Boundary (refer to the upcoming Kinston Thoroughfare Plan Update report for recommendations regarding the remainder of US 70 in Kinston). It is estimated that this project will cost approximately $14 million.

- **Transportation Demand:** US 70 is a principal arterial that currently serves both through and local traffic in Lenoir County. Although construction of the proposed US 70 Bypass will eliminate through traffic, local traffic between Kinston and La Grange will continue to increase.

- **Capacity:** US 70 through Lenoir County is currently a four-lane divided, non-control of access facility with the exception of the LaGrange Bypass. 2020 traffic volumes along this corridor are projected to range from 25,000 vpd to 70,000 vpd.

Construction of the proposed US 70 Bypass will remove approximately 23,400 vpd from this section of the existing facility leaving a projected 33,600 vpd along the existing corridor in 2020. This volume is nearing the practical capacity of the existing corridor. Because Lenoir County does not have land use controls, it is expected that the capacity of existing US 70 will continue to deteriorate.

- **Social Demands / Economic Development:** There is currently a substantial amount of commercial development either existing or planned within the US 70 corridor. Interspersed among the commercial development is both residential and industrial development. Lenoir County has indicated that similar development is expected to continue in the future. Without an increase in capacity congestion along US 70 will continue to increase.

US 258

- **Project Recommendation:** It is recommended that US 258 be widened to a four-lane divided facility throughout the Lenoir County Planning Area (TIP Projects R-2235 and R-3308). (Refer to the upcoming Kinston Thoroughfare Plan Update report for recommendations regarding the remainder of US 258 in Kinston.)

- **Transportation Demand:** US 258 is a minor arterial. It is one of two north-south facilities in Lenoir County serving the Global Transpark. US 258 also provides direct access to Camp Lejune Marine Base in Jacksonville, NC.

- **Capacity:** US 258 is currently a narrow two-lane facility throughout the rural areas of Lenoir County carrying volumes ranging from 3900 vpd at the southern end to 6700 vpd at the northern end. (Refer to the upcoming Kinston Thoroughfare Plan Update report for US 258 traffic volumes in Kinston.) With the development of the Global Transpark, these volumes are expected to increase to 8500 vpd at the southern end and 24300 vpd at the northern end by 2020. At these volumes, US 258 will be approaching practical capacity in the southern part of the county and be well over the practical capacity in the northern part.

NC 11

- **Project Recommendation:** It is recommended that NC 11 be widened to six lanes from the Kinston Planning Area Boundary to Grifton and to four lanes with a bypass of Deep Run from Pink Hill to the proposed US 70 Bypass (TIP Project R-2001). (Refer to the upcoming Kinston Thoroughfare Plan Update report for recommendations regarding the remainder of NC 11 in Kinston and to the upcoming Grifton Thoroughfare Plan report for recommendations regarding the remainder of NC 11 in Grifton). It is estimated that these projects will cost approximately $8

million and $31 million, respectively.

- **Transportation Demand:** This minor arterial serves as the main connector between Grifton and Kinston and Pink Hill and Kinston (refer to **September 25, 1996, Reginald Stroud letter, pg. C-5**). NC 11 is a north-south facility running from US 74 (part of the I-74 corridor) in Columbus County to US 258 just south of the Virginia border. It provides access to US 70 in Lenoir County and I-40 in Duplin County.

- **Capacity:** NC 11 is currently a four-lane divided non-control-of-access facility carrying approximately 14,000 vpd between Kinston and Grifton. With development of the Global Transpark, this section of the facility is projected to carry approximately 50,000 vpd by the year 2020. This volume will well exceed the practical capacity of the existing facility.

  NC 11 is currently a two lane facility from Pink Hill to Kinston carrying an average of 6,000 vpd. By the year 2020, this section is projected to carry volumes ranging from 9,900 vpd to 12,900 vpd. These volumes will exceed the practical capacity of the narrow facility.

NC 58

Project Recommendation: It is recommended that NC 58 be widened to a four-lane divided facility from Loftins Crossroads (SR 1913) to the Kinston Planning Boundary (Refer to the upcoming Kinston Thoroughfare Plan Update report for recommendations regarding the remainder of NC 58 in Kinston.)

- **Transportation Demand:** NC 58 is a major collector. It is one of two north-south facilities in Lenoir County serving the Global Transpark. NC 58 provides access to US 301 in Wilson County and to the Bogue Banks area at the coast.

- **Capacity:** NC 58 is currently a two-lane facility throughout the rural areas of Lenoir County carrying volumes ranging from 3,300 vpd south of Loftins Crossroads to 5,100 vpd just north of Loftins Crossroads. (Refer to the upcoming Kinston Thoroughfare Plan Update report for NC 58 traffic volumes in Kinston.) With the development of the Global Transpark, these volumes are expected to increase to 7,100 vpd and 10,700 vpd, respectively by 2020. At these volumes, US 258 will be approaching practical capacity north of Loftins Crossroads.

NC 55

- **Project Recommendation:** It is recommended that NC 55 be widened to include

two-foot paved shoulders from Wayne County to the Kinston Planning Area Boundary. The remainder of rural NC 55 should be adequate to handle future traffic. (Refer to the upcoming Kinston Thoroughfare Plan Update report for recommendations regarding the remainder of NC 55 in Kinston.)

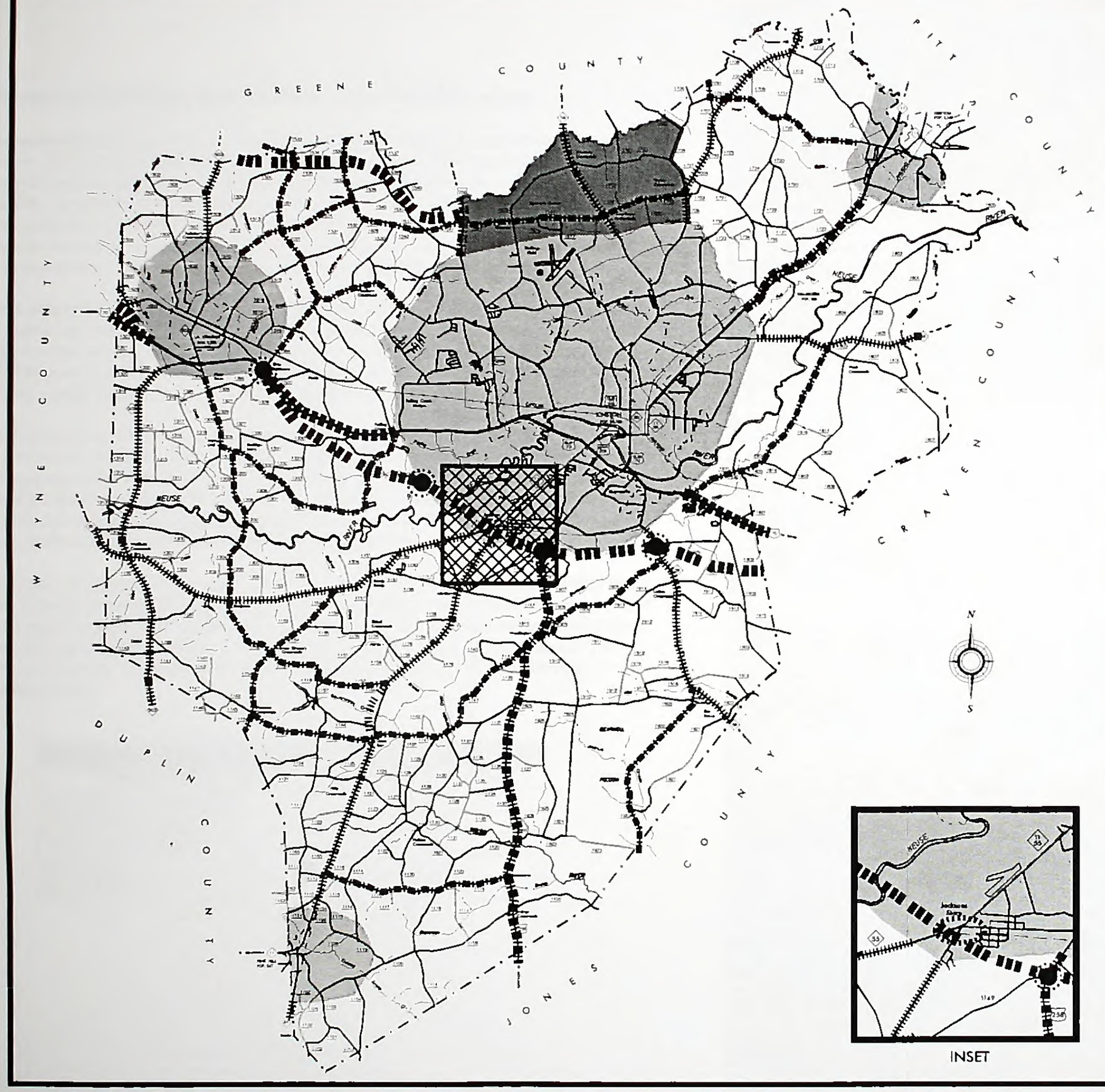
- **Transportation Demand:** NC 55 is a major collector. It provides access to I-95 in Harnett County. The section of NC 55 from Wayne County to Kinston currently carries volumes ranging from 2,200 vpd to 3,300 vpd. Although these volumes are relatively low, a significant number are trucks.

- **Safety Issues:** On Friday, November 1, 1997, 45 cars and 11 trucks were counted during one 15 minute period. Construction of two-foot paved shoulders will allow for safe passage of oncoming traffic.

Other Improvements

- **Project Recommendation:** The following facilities are recommended to be widened to two 12-foot lanes to provide for safe travel.

  - NC 58
  - NC 903
  - John Green Smith Road (SR 1141)
  - Brothers Road (SR 1514)
  - Grifton-Hugo Road (SR 1091)
  - Hugo Road (SR 1004)
  - Institute Road (SR 1541)
  - Jonestown Road (SR 1116)
  - Kennedy Home Road (SR 1324)
  - Lidell Road (SR 1143)
  - Mosely Creek Road (SR 1327)
  - Neuse Road (SR 1804)
  - Pauls Path Road (SR 1001)



INSET

LEGEND

EXISTING	PROPOSED	
		Interstate
		Other Principal Arterial
		Minor Arterial
		Major Collector
		Minor Collector

URBAN PLANNING AREA BOUNDARY

GLOBAL TRANSPARK BOUNDARY

INTERCHANGE

PROPOSED INTERCHANGE

COLLECTOR /DISTRIBUTOR

ADOPTED BY:

LENOIR COUNTY	February 2, 1998
PUBLIC HEARINGS	February 2, 1998
RECOMMENDED BY STATEWIDE PLANNING	April 1, 1998
N.C. DEPARTMENT OF TRANSPORTATION	June 5, 1998

November 3, 1997

FIGURE 1

THOROUGHFARE PLAN



LENOIR COUNTY
NORTH CAROLINA

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - GIS UNIT

IN COOPERATION WITH THE

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALES

2 1 0 2 4 6
miles

2 0 2 6 10
kilometers

Construction Priorities, User Benefits, and Cost Estimates

The recommended improvements (refer to **Figure 2**) in this thoroughfare plan cannot be undertaken all at once, nor should they be. The need for projects is based on traffic projections for a twenty-six year design period. Therefore, projects must be prioritized for realistic scheduling to be possible. In an effort to provide a common denominator to compare various improvement projects in the recommended Lenoir County Thoroughfare Plan, an assessment has been made of the benefits that can be expected from the thoroughfare projects. These benefits and associated project costs are then used along with local input as a guide in prioritizing projects.

Three principal measures were used to estimate the benefits that would be derived from each project: road user cost savings; the potential for increased economic development resulting from the improvement; and the environmental impacts, both positive and negative, which may result. The first measure is an actual estimate of dollar savings, while the others are estimates of the probability of the resulting change. These measures are described below.

Reduced road user costs should result from any roadway improvement, from simple widening to the construction of a new roadway to relieve congested or unsafe conditions. Comparisons of the existing and proposed facility have been made in terms of vehicle operating costs, travel time cost, and accident costs. These user benefits are computed as total dollar savings over the twenty-one year design period using data such as project length, base year and design year traffic volumes, traffic speed, type of facility, and volume/capacity ratio.

The impact of a project on economic development potential is denoted as the probability that it will stimulate the economic development of an area by providing access to land with development potential and reducing transportation costs. It is a subjective estimate based on the knowledge of the proposed project, local development characteristics, and land development potential. The probability is rated on a scale from 0 (none) to 1.00 (excellent), along with the following intermediate levels:

Table 1. Probability Estimation Guide

Subjective Evaluation	Impact Probability
Excellent (very substantial)	1.00
Very Good (substantial)	0.75
Good (considerable)	0.50
Fair (some)	0.25
Poor (none)	0.00

The environmental impact analysis considers the effect of a project on the physical, social a cultural, and economic environment. Many of these have been accounted for in the evaluation the project with respect to user benefits, cost, and economic development potential. However, there are twelve environmental factors generally not considered in these evaluations. They are environmental impacts of a project on: (1) air quality; (2) water resources; (3) soils and geology (4) wildlife; (5) vegetation; (6) housing and neighborhoods; (7) noise; (8) educational facilities; (9) churches; (10) parks and recreational facilities; (11) historic sites; and (12) public health and safety. The summation of both positive and negative impact probabilities with respect to these factors provides a measure of the relative environmental impact of a project.

Table 2. Environmental Considerations

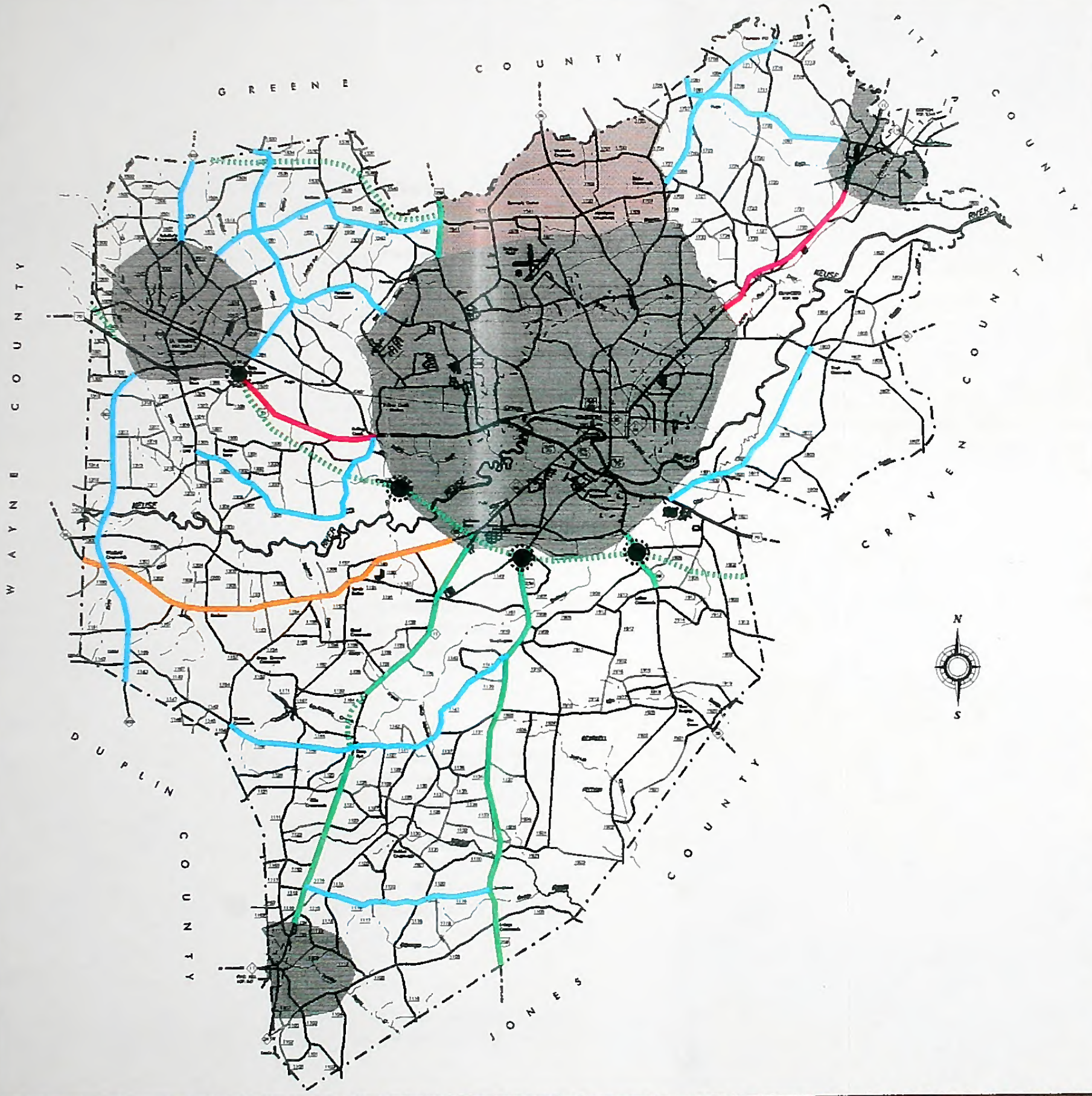
Physical Soils and Geology	Social / Cultural Environment	Economic Environment
Air Quality	Housing and Neighborhoods	Businesses
Water Resources	Noise	Employment
Soils and Geology	Educational Facilities	Economic Development
Wildlife	Churches	Public Utilities
Vegetation	Parks and Recreational Facilities	Transportation Costs
	Historic Sites and Landmarks	Capital Costs
	Public Health and Safety	Operation and Maintenance Costs
	National Defense	
	Aesthetics	

Offsetting the benefits that would be derived from any project is the cost of its construction. new facility, despite its projected benefits, might prove to be unjustified due to the excessive co involved in construction. The highway costs estimated in this report are based on the average statewide construction costs for similar project types. An estimate of anticipated right-of-way costs is also included. **Table 3** evaluates the proposed Lenoir County improvements with respe to user benefits, estimated costs, probability of economic development, and environmental impa

Table 3. Lenoir County Thoroughfare Plan Cost Estimates, Benefits, and Probable Impacts						
Description	**Construction Cost**	**ROW Cost**	**Total Cost**	**User Benefits**	**Economic Development**	**Environmental Impacts**
Proposed US 70 Bypass	Contact the North Carolina Department of Transportation's Planning and Environmental Branch for the most up to date information.					
Perimeter Road	(TIP)	(TIP)	$89,500	Refer to the Feasibility Study for TIP R-3331 and to the *North Carolina Global Transpark Documentation of Travel Demand Model* for additional information.		
US 70 Widening	$7,000	$1,430	$13,500	$212,377	0.50	0.30
US 258 Widening	(TIP)	(TIP)	$34,900	$45,683	0.25	0.25
NC 11 Widening				$519,498		
Pink Hill to US 70 Byp	(TIP)	(TIP)	$30,600		0.25	0.10
Kinton to Grifton	$7,500	$170	$8,000		0.10	0.25
NC 58 Widening	$1,125	$275	$1,400	$58,425	0.10	0.10

Notes: All costs and benefits are in $1,000.

All remaining recommendations are for safety reasons.



LEGEND

No. 12ft Lanes	Widening	Proposed
6		
4		
2		

2 FT PAVED SHOULDERS

URBAN PLANNING AREA BOUNDARY

GLOBAL TRANSPARK BOUNDARY

PROPOSED INTERCHANGE

FIGURE 2

RECOMMENDED IMPROVEMENTS



LENOIR COUNTY
NORTH CAROLINA

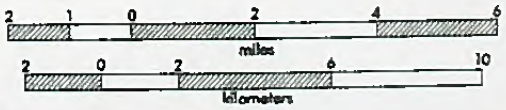
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - GIS UNIT

IN COOPERATION WITH THE

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALES



Chapter 3
Implementation

Implementation is one of the most important aspects of the thoroughfare plan. Unless implementation is an integral part of the process, the effort associated with developing the plan and the integrity of the plan are lost. The following steps can be used to assist the County in implementing the recommended improvements associated with the thoroughfare plan.

State and County Adoption of the Thoroughfare Plan

The first step in the implementation process is the mutual adoption of the thoroughfare plan. It is recommended that Lenoir County and the North Carolina Department of Transportation mutually adopt the Thoroughfare Plan as shown in **Figure 1, page 9.** The mutually adopted Plan may then serve as a guide for the Department of Transportation in the development of the road and highway system for the County. The adoption of the Plan by the County also enables standard road regulations and land use controls to be used effectively in the implementation of the plan.

Corridor Preservation

The next step in implementing the thoroughfare plan is corridor preservation. Corridor preservation is a critical step in the implementation process, because it minimizes the disruption to local residents and businesses, as well as to the environment. Through measures such as subdivision, land use, and development regulations, the County can protect the necessary right of way for the identified recommended improvements.

Subdivision Regulations

Subdivision regulations require that every subdivider submit to the County a plot of his or her proposed subdivision. Certain standards must be met by the developer before he or she can be issued a building permit to construct the development. Through this process, it is possible to reserve or protect the necessary right-of-way for proposed streets which are a part of the thoroughfare plan and to require street construction in accordance with the plan.

This tool would be applicable to the construction of the proposed US 70 Bypass and Perimeter Road. Requiring set-backs would reduce the disruption of homes and businesses due to the construction of the new facilities.

Land Use Regulations

Land use regulations are an important tool in that they regulate future land development and minimize undesirable development along roads and highways. The land use regulatory system can

improve highway safety by requiring sufficient setbacks to provide for adequate sight distances and by requiring off- street parking.

This tool would be applicable to all facilities with recommended widenings. This would ensure that these facilities would maintain their intended capacities.

Development Regulations

Driveway access to a State-maintained street or highway is reviewed by the District Engineer's office and by the Traffic Engineering Branch of the North Carolina Department of Transportation prior to access being permitted. Any development expected to generate large volumes of traffic (e.g. shopping centers, fast food restaurants, large industries, etc.) may be comprehensively studied by staff from the Traffic Engineering, Statewide Planning, and Roadway Design Branches of NCDOT. If done at an early stage, it is often possible to significantly improve the development's accessibility at minimal expense. Since the municipality is the first point of contact for developers, it is important that the municipality advise them of this review requirement and cooperate in the review process.

Use of developmental reviews could help control increasing traffic and congestion along US 70 throughout Lenoir County.

Funding Sources

The final step in the implementation process is to obtain funding for each project. Sources such as the Transportation Improvement Program, small urban funds, enhancement funds, and industrial access funds are a few examples of funding sources available to the County.

Transportation Improvement Program

North Carolina's Transportation Improvement Program (STIP) is a document which lists major construction projects the Department plans for the next seven years. STIP projects are matched with project funding sources. As the TIP is updated, completed projects are removed, programmed projects are advanced, and new projects are added.

Biannual STIP public meetings are held in each of the fourteen highway divisions. These meetings provide an avenue for cities, counties, local government officials, special interest groups and citizens to have direct access to NCDOT officials and staff members and to present priorities, needs, requests, and desires for all modes of transportation. Data collected from these public meetings, as well as letters received throughout the year, is summarized and provided to the North Carolina Board of Transportation for their review and consideration during the STIP update process. Work sessions are then held for Board of Transportation Members, Division Engineers, and NCDOT Staff to review the current project status; the revenue "picture"; and local, regional, and statewide priorities. Based on this information, it is decided which projects will be included in

the STIP. For more detailed information, refer to the "Bienniel STIP Process" available through the Statewide Planning Branch.

In addition to highway construction and widening, STIP funds are also available for other projects including bridge replacement, highway safety, public transit, railroad crossings, and bicycle facilities.

Small Urban Funds

Small Urban Funds are discretionary funds available to each of the 14 divisions on an annual basis. Each division receives $1 million per year. These funds are available for the construction of projects within one mile of the municipal boundaries. Request for Small Urban Fund assistance should be directed to the appropriate Board Member and Division Engineer. For information regarding the policies and procedures for requesting small urban funds, refer to the following website: *www.dot.state.nc.us/secretary/plans/reorg/smallurbanfunds.html.*

Enhancement Funds

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 provides federal funds for transportation enhancement activities. These activities must have a direct relationship to the intermodal transportation system. This relationship may be one of function, proximity, or impact. Activities that may be eligible for these funds include: pedestrian and bicycle facilities; acquisition of scenic easements and scenic or historic sites; scenic or historic highway programs; landscaping and other scenic beautification; historic preservation; rehabilitating and operating historic transportation buildings, structures, or facilities; preserving abandoned railway corridors; controlling and removing outdoor advertising; archaeological planning and research; and mitigating water pollution due to highway runoff. For additional information concerning these funds, contact the Program Development Branch of the NC Department of Transportation.

Industrial Access Funds

Industrial Access funds are used by the Department to finance both new highway construction and improvements to existing roads or bridges as incentive to develop industrial interests. For example, if an industry wishes to develop property that does not have access to a state maintained highway and certain economic conditions are met, then funds may be available for construction of an access road. For additional information concerning these funds, contact the Secondary Roads Office of the NC Department of Transportation.

Chapter 4

Trends and Related Issues

In order to develop a thoroughfare plan, future travel patterns must be determined. Land use, economy, and population affect travel patterns, therefore, they play a vital role in determining the transportation needs of a county. Examining these factors can help explain historic traffic trends and lay the groundwork for predicting future travel.

Land Use

Transportation is closely related to land use. The development of raw land produces a need for transportation to and from that land. Conversely, the construction of a transportation facility can often make raw land more desirable for development. Understanding this relationship and its associated implications is crucial to the development of a healthy, viable community.

The majority of the Lenoir County thoroughfare planning area is rural in nature. Most of the housing and employment in the County lies inside of the urban area thoroughfare planning boundaries (refer to **Appendix D**).

The Global Transpark (GTP) will be the driving force behind any significant changes in land use. It will house the majority of the future industrial employment. Approximately 25,000 employees are expected on the Global Transpark site by the year 2020. (Estimates were supplied by Kimley Horn and Associates.)

As a result of the Transpark, housing and other employment is expected to occur at an increased rate in and around the outskirts of the urban areas. An additional 7,800 employees are expected in and around the Kinston area by the year 2020. An additional 12,900 housing units are expected as well. The Global Transpark is not expected to significantly increase past trends in the southern portion of the county.

Economic Trends

The economic base of an area is an important factor to consider in estimating future traffic growth. The economic base determines the employment type and size. This in turn influences the population of an area.

Employment figures for Lenoir County show that in 1996 there were 27,838 employees. Using this information, the employment to population ratio was calculated to be 0.47. This ratio is slightly lower than the normal range of 0.50 to 0.60. However, the 2020 employment to population ratio is projected to increase to 0.66 with the growth of the Global Transpark. Refer to **Figure 3** for economic growth trends and projections.

Population Trends

Travel is directly related to the population of an area. The volume of traffic on a particular section of roadway is closely related to the size and the distribution of the population it serves. studying past population counts, future projections can be estimated. **Table 4** shows the population trends for the State, the County, and the townships in Lenoir County. The projectic shown below indicate that the County will grow at a significantly slower rate than the State through the year 2020. However, *the projections given for the County do not take into account effect the North Carolina Global Transpark may have on Lenoir County.* Refer to **Figure 4** fo population trends and projections that are reflective of the projected Global Transpark growth.

Table 4. Population Trends and Projections

Description	1960	1970	1980	1990	Growth Trends '60-'90	*2000	*2010	*2020	Gro Trend '2
North Carolina	4,556,155	5,084,411	5,880,095	6,632,448	1.3%	7,713,383	8,543,312	9,345,967	1.1
Lenoir County	55,276	55,204	59,819	57,274	0.1%	60,290	59,652	58,394	0.1
Townships									
Contentnea Neck	3,003	2,806	2,981	2,857	-0.2%	-----	-----	-----	---
Falling Creek	2,503	2,691	5,007	5,265	2.5%	-----	-----	-----	---
Institute	1,323	1,164	992	1,350	0.1%	-----	-----	-----	---
Kinston	29,243	28,563	28,046	25,619	-0.4%	-----	-----	-----	---
Moseley Hall	4,578	4,798	5,321	4,928	0.2%	-----	-----	-----	---
Neuse	4,021	5,022	5,683	5,552	1.1%	-----	-----	-----	---
Pink Hill	1,993	1,939	2,319	2,201	0.3%	-----	-----	-----	---
Sand Hill	962	927	842	941	-0.1%	-----	-----	-----	---
Southwest	1,354	1,514	1,683	1,534	0.4%	-----	-----	-----	---
Trent	2,124	1,788	1,998	2,029	-0.2%	-----	-----	-----	---
Vance	2,575	2,720	3,502	3,527	1.1%	-----	-----	-----	---
Woodington	1,597	1,272	1,445	1,471	-0.3%	-----	-----	-----	---

* North Carolina Office of State Planning

Vehicle Registration

Since 1970, the number of registered vehicles in Lenoir County has increased at a greate rate than the population. This increase can be shown best by a graph depicting the change in th persons per vehicle ratio over time. **Figure 5** compares this ratio for North Carolina and Lenoi County. The results show that over time more vehicles have become available per person. Because of this convenience, more vehicle trips are made. Therefore, traffic and congestion on road system are growing at a faster rate than the population in the area.

Travel Demand

2020 traffic projections were calculated based on historical traffic trends and projected traffic for the Global Transpark. Traffic trends in Lenoir County were studied over a ten year period. A comparison of annual growth rates from 1984 to 1994 at various count locations in Lenoir County shows average annual growth rates ranging from 1.3% to 6.1%. Typically, it is difficult for traffic in a county to sustain an annual growth rate of 4.0% percent or greater for a long period of time. It is also unlikely that area traffic will maintain a growth rate of less than 2.0%. Therefore, the growth rates outside of the 2.0% to 4.0% range were altered to maintain a steady flow of projected traffic. After this adjustment was made, the additional traffic projected as a result of the Global Transpark was added for the year 2020. (The Global Transpark traffic and its distribution can be found in the April, 1996, technical report, *North Carolina Global Transpark – Documentation of Travel Demand Model.*) For current and projected traffic counts in Lenoir County refer to **Figure 6.**

Figure 3. Lenoir County Economic Trends and Projections

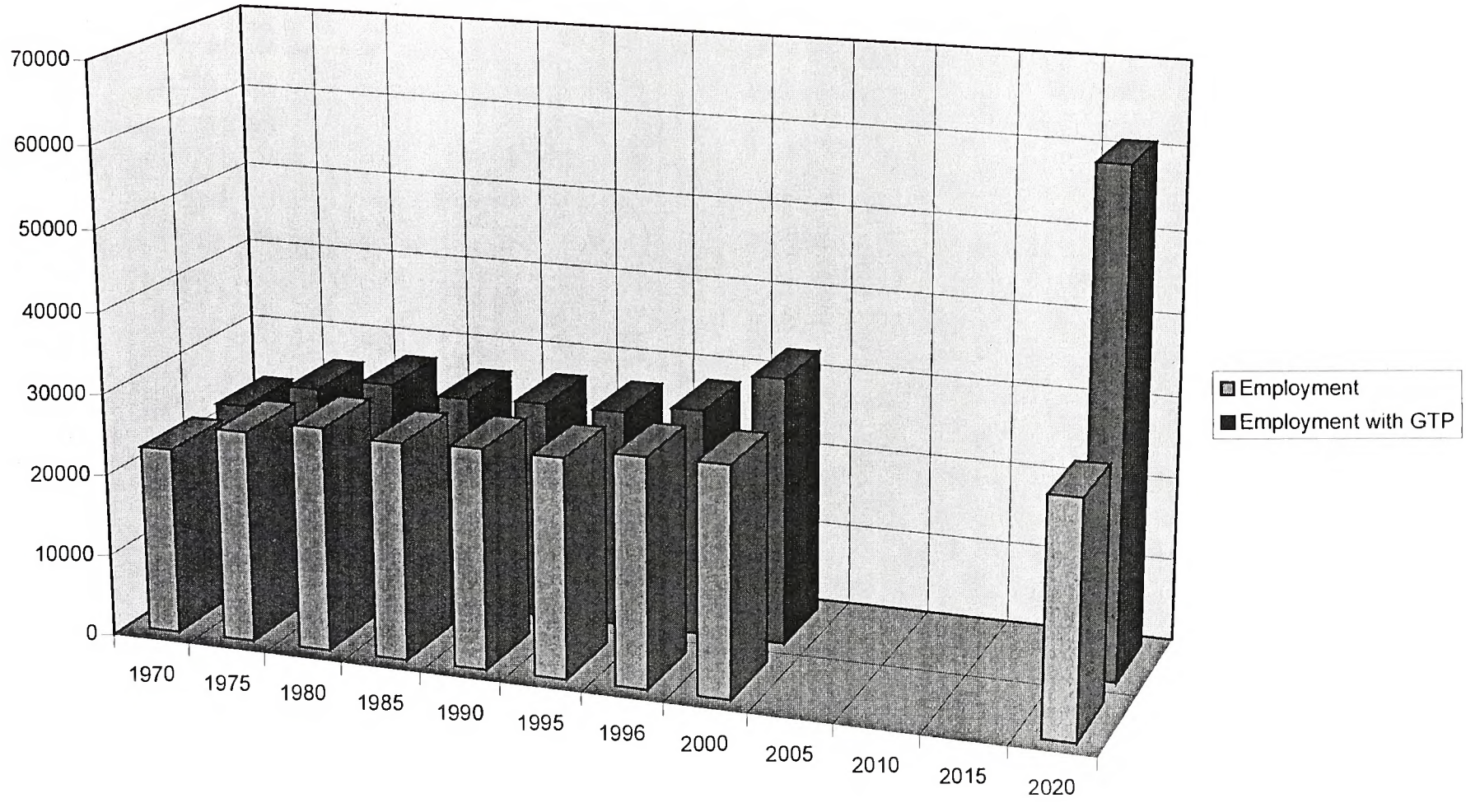


Figure 4. Lenoir County Population Trends and Projections

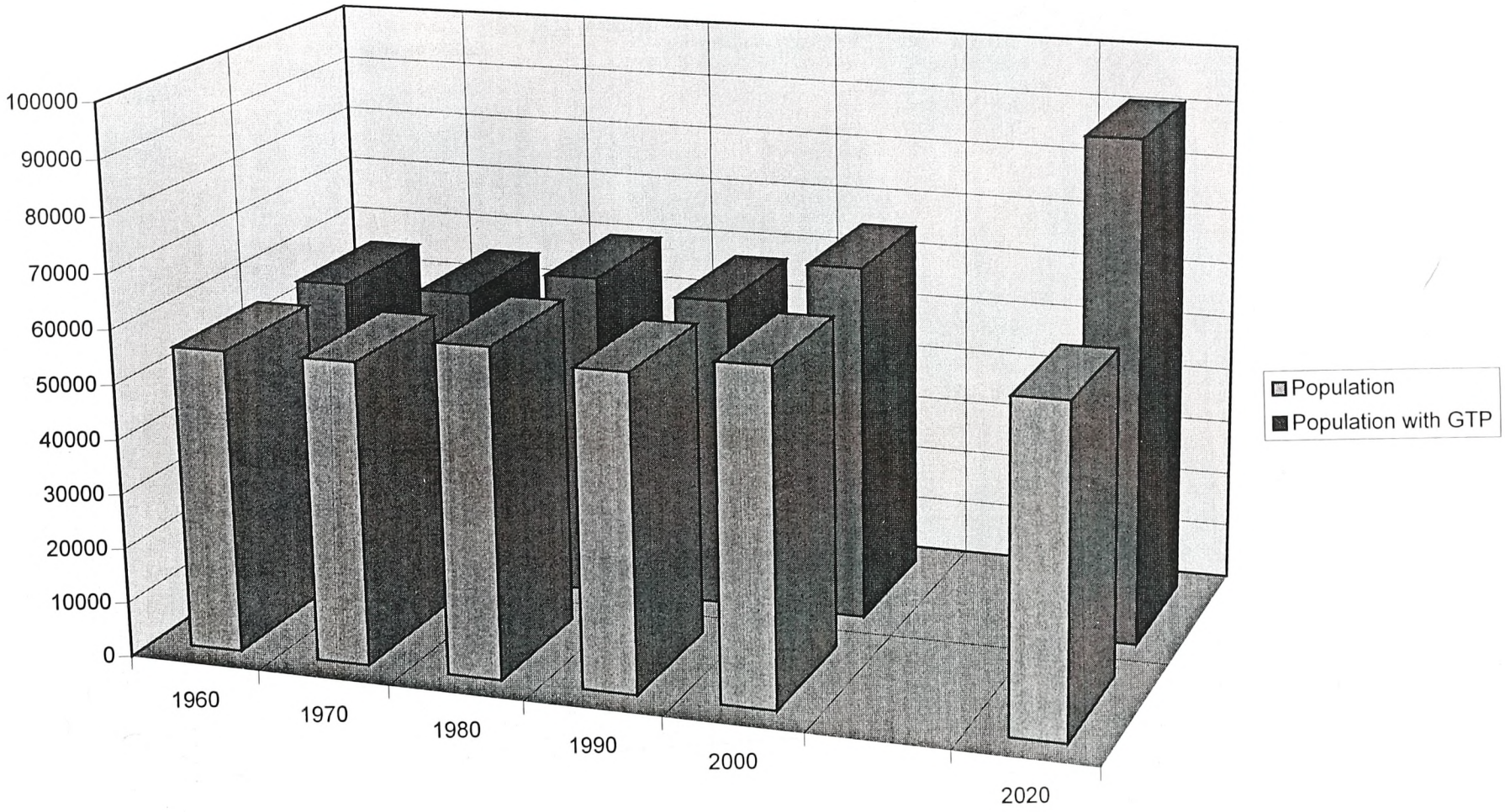
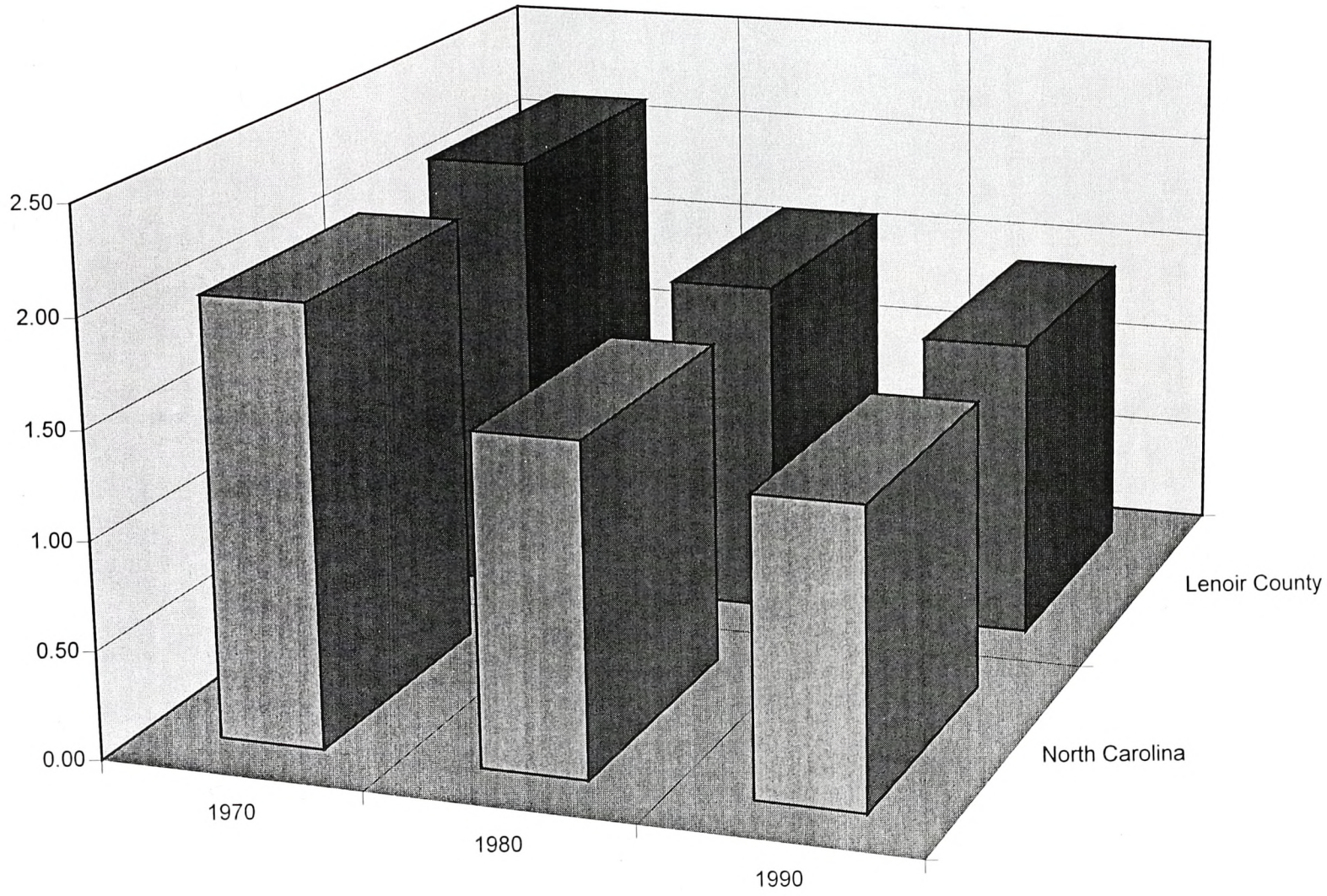
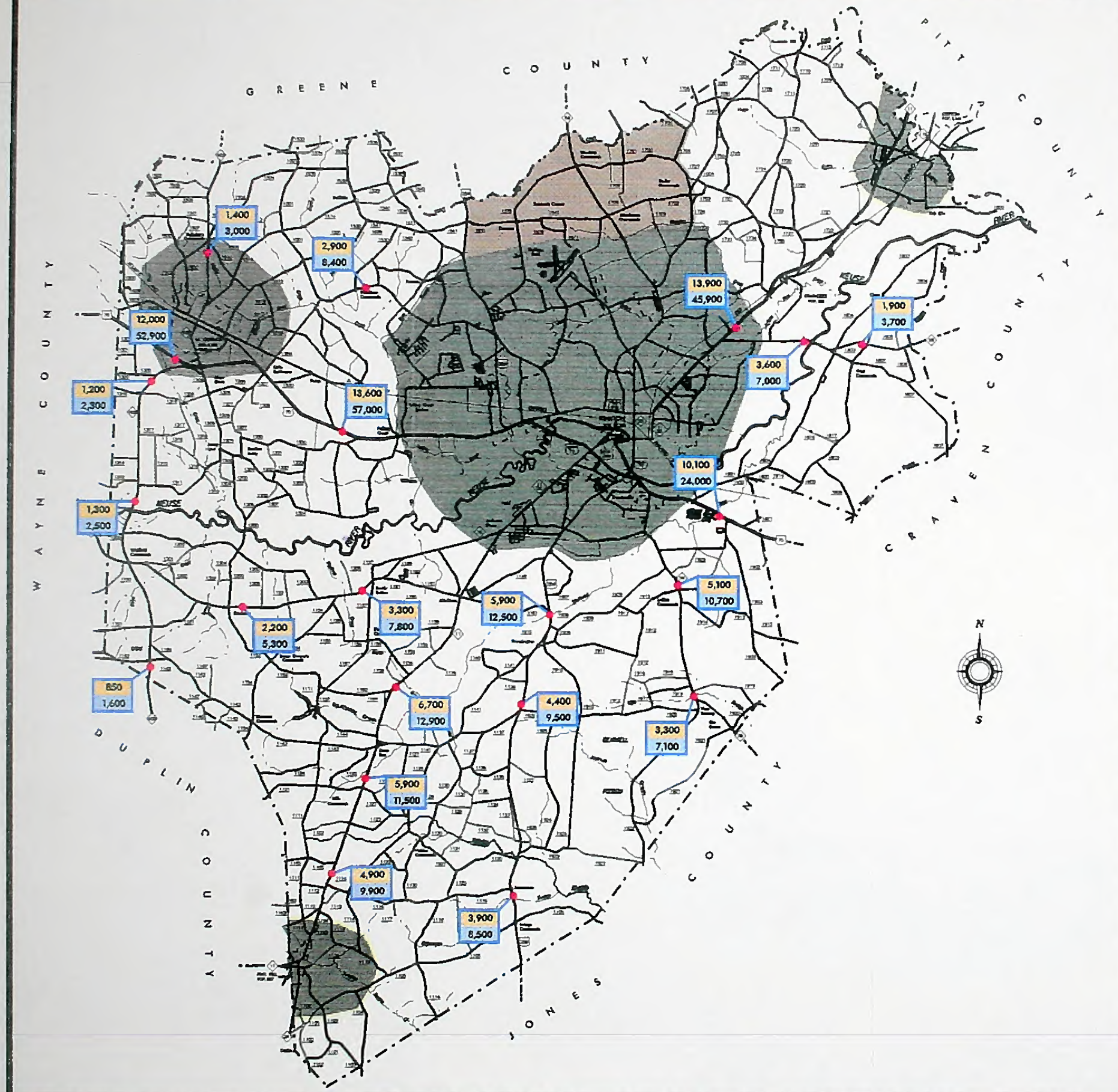


Figure 5. Persons per Vehicle





LEGEND

00,000 1994 ANNUAL AVERAGE DAILY TRAFFIC
00,000 2020 ANNUAL AVERAGE DAILY TRAFFIC

URBAN PLANNING AREA BOUNDARY

GLOBAL TRANSPARK BOUNDARY

FIGURE 6

1994 AVERAGE DAILY TRAFFIC COUNTS

LENOIR COUNTY
NORTH CAROLINA

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - GIS UNIT

IN COOPERATION WITH THE

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALES

2 1 0 2 4 6
miles

2 0 2 6 10
kilometers

Chapter 5

Travel Deficiency Analysis of Existing System

Once an accurate investigation of land use, economic conditions, and population has been completed, travel deficiencies along the existing street system can be analyzed. This chapter presents an analysis of Lenoir County's existing street system, and its ability to handle traffic in the area.

A capacity deficiency analysis was done for both the base year (1994) and the design year (2020). (Capacity refers to the maximum number of vehicles a particular road can handle.) During the capacity deficiency analysis, roads were analyzed based on a level of service D (LOS D: the point at which the public begins to express dissatisfaction - refer to **Figure 7**). For a detailed description of level of service (LOS), refer to Generalized Chapters for the Thoroughfare Plan Reports, prepared by the Statewide Planning Branch of the North Carolina Department of Transportation. In addition to analyzing capacity deficiencies, high accident intersections and deficient bridges in Lenoir County were investigated. By analyzing these deficiencies, the need for new facilities and for widening existing facilities could be determined.

Capacity Deficiency Analysis

1994 Analysis

The North Carolina Department of Transportation (NCDOT) conducts traffic counts on a regular basis across the state. These counts are reported in the form of Average Daily Traffic (AADT) volumes. The comparison of current AADT volumes in Lenoir County with the current street capacities indicates that there are no capacity deficiencies.

2020 Analysis

The capacity deficiency analysis in the design year analyzes the "no build" alternative. The analysis of this alternative looks at the existing street system and any funded TIP (Transportation Improvement Program) projects.

If a "no build" alternative is taken, additional streets will reach capacity by the design year (2020), as well as, the level of service of the street described above continuing to deteriorate (refer to **Figure 8**).

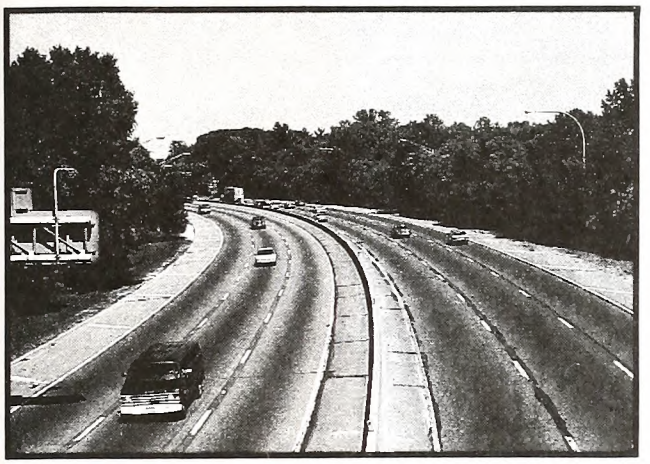
US 70: The current capacity of this four-lane divided facility is 40,000 vehicles per day (vpd) between the LaGrange Thoroughfare Planning Area Boundary and the Kinston Thoroughfare Planning Area Boundary. This facility will be over capacity by the design year. This section of US 70 is projected to carry around 57,000 vpd.

US 258: This facility is currently programmed in the *1998-2004 Transportation Improvement Program* as an identified future need (TIP R-3308 and TIP R-2235). If the programmed projects are not funded, this facility will experience capacity problems as well. The section south of Kinston will be at capacity with an average of 10,000 vpd. The section north of Kinston will be over capacity with an average of 24,300 vpd.

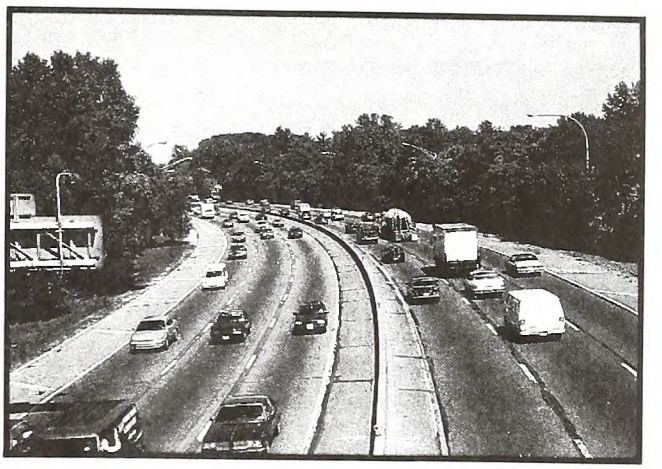
NC 11: NC 11 is a four-lane divided facility between the Grifton Thoroughfare Planning Area Boundary and the Kinston Thoroughfare Planning Area Boundary. The current capacity of this section of NC 11 is 40,000 vpd. This facility will be over capacity by the design year. It is projected to carry 45,900 vpd.

NC 58: A short section of NC 58 outside of Kinston's Thoroughfare Planning Area Boundary is projected to be near capacity by the design year. NC 58 is currently a two-lane facility south of Kinston with a capacity of 11,000 vpd. It is projected to carry 10,700 vpd by the year 2020.

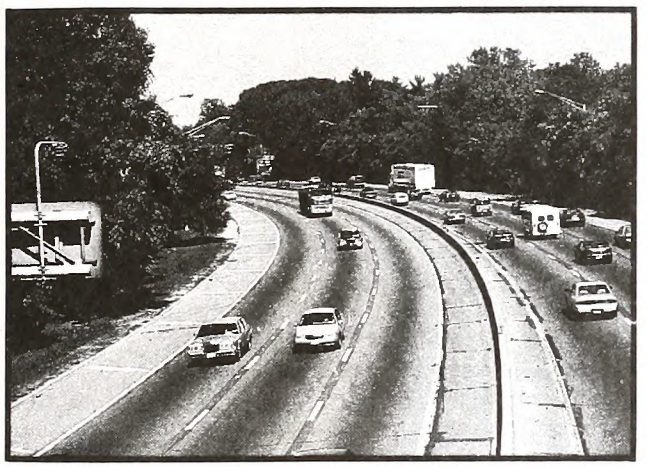
Source: 1994 Highway Capacity Manual



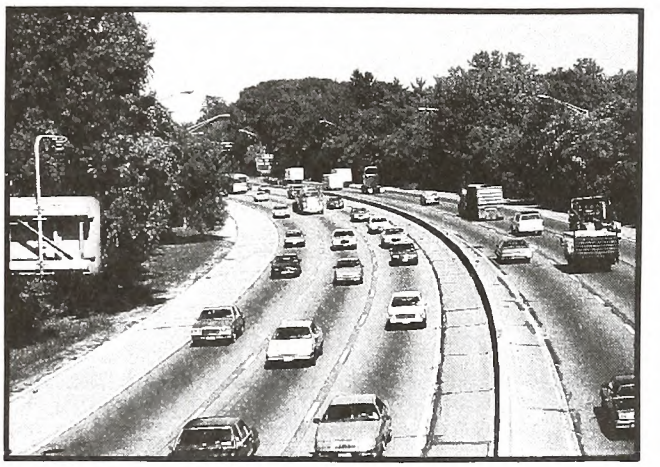
LOS A.



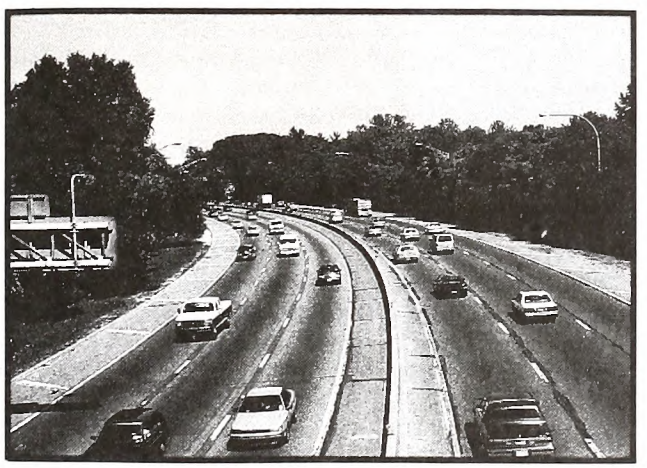
LOS D.



LOS B.



LOS E.



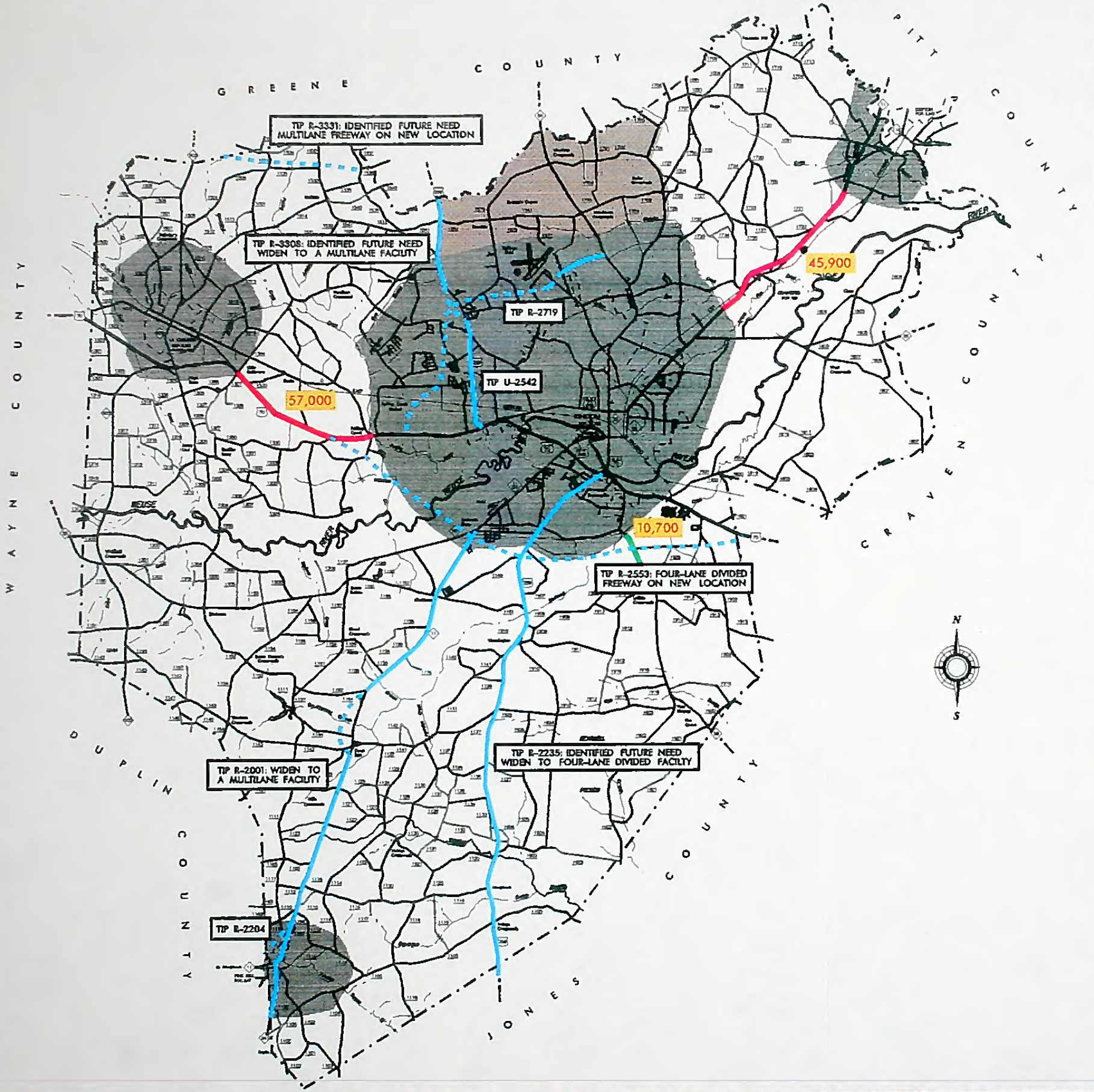
LOS C.



LOS F.

FIGURE 7

LEVELS OF SERVICE



LEGEND

- TIP PROJECT (WIDENING)
- TIP PROJECT (NEW LOCATION)
- NEAR CAPACITY
- AT OR OVER CAPACITY
- 00,000 — 2020 ANNUAL AVERAGE DAILY TRAFFIC
- URBAN PLANNING AREA BOUNDARY
- GLOBAL TRANSPARK BOUNDARY

FIGURE 8

2020 CAPACITY DEFICIENCIES (EXISTING AND TIP)



LENOIR COUNTY
NORTH CAROLINA

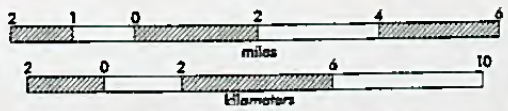
PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - GIS UNIT

IN COOPERATION WITH THE

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALES



Accident Locations

Traffic accident records are of assistance in locating problem areas on the highway system. Accident data for the period from April, 1993, through May, 1996, lists 3 intersections in the Lenoir County thoroughfare planning area having 10 or more accidents (refer to **Table 5**).

Table 5. Accident Locations (10 or more accidents) April, 1993 to May, 1996

Intersection	Number of Accidents	Predominate Type
1. US 258 and SR 1541	12	Rear End
2. NC 11 and SR 1156	*10	Rear End
3. NC 11 and SR 1722	*10	Angle

*An incapacitating accident occurred at this location during the given time period.

Note: This table does not include accident data inside of the urban PAB's.

Deficient Bridges

A sufficiency rating is used in the analysis of bridges to help determine if a particular bridge is substandard. The sufficiency rating is a method of evaluating factors which are indicative of a bridge's ability to remain in service. These factors include structural adequacy and safety, serviceability and functional obsolescence, essentiality for public use, type of structure, and traffic safety features. This procedure results in a percentage in which 100% represents an entirely sufficient bridge and 0% represents an entirely deficient bridge. A sufficiency rating of 50% or less qualifies for Federal Bridge Replacement Funds.

Substandard bridges are broken into two categories: structurally deficient bridges (refer to **Table 6**) and functionally obsolete bridges (refer to **Table 7**). Structurally deficient bridges are in relatively poor condition or have insufficient load carrying capacity. Functionally obsolete bridges are narrow, have inadequate underclearances, have insufficient load carrying capacity, or are poorly aligned with the roadway and can no longer adequately serve today's traffic. The following tables list bridges with sufficiency ratings of less than 100%. However, only those with ratings of 50% or less are eligible for Federal Bridge Replacement Funds.

Table 6. Structurally Deficient Bridges

Location	Bridge Number	Sufficiency Rating
1. NC 11 at Southwest Creek	19	58.0
2. US 70 at Southwest Creek	66*	49.1
3. SR 1515 at Falling Creek	67	44.3
4. SR 1515 at Groundnut Creek	68	35.8
5. SR 1501 at Fork of Bear Creek	69	46.7
6. SR 1152 at Neuse River Overflow	153*	43.6

*Included in the *1998-2004 Transportation Improvement Program.*

Table 7. Functionally Obsolete Bridges		
Location	Bridge Number	Sufficiency Rating
1. US 258 at Southwest Creek	16	63.4
2. NC 55 at Neuse River	20	52.1
3. SR 1920 at Vine Swamp Creek	24	46.1
4. NC 55 at Neuse River Overflow	34	67.3
5. SR 1311 at Bear Creek	49	67.8

Chapter 6

Environmental Concerns

In the past several years, environmental concerns associated with highway construction have come to the forefront of the planning process. The legislation that dictates the necessary procedures regarding environmental impacts is the National Environmental Policy Act. Section 102 of this act requires the execution of an Environmental Impact Statement (EIS) for road projects that have a significant impact on the environment. Included in an EIS are the project's impact on wetlands, water quality, historic properties, wildlife, and public lands. While this report does not cover the environmental concerns in as much detail as an EIS would, preliminary research was done on several of these factors and is reported below.

Wetlands

Wetlands are lands where saturation with water is the dominant factor in determining the nature of soil development and the types of plant and animal communities living in and on the surface of the soil. They are crucial ecosystems in our environment. Wetlands help regulate and maintain the hydrology of our rivers, lakes, and streams by slowly storing and releasing flood waters. They help maintain the quality of our water by storing nutrients, reducing sediment loads, and reducing erosion. Wetlands are also critical to fish and wildlife populations. They provide an important habitat for about one third of the plant and animal species that are federally listed as threatened or endangered.[1]

Section 404 of the Clean Water Act of 1977 requires no disruption of wetlands if there is a practical and feasible alternative that would have a less adverse impact on the area. In addition, compensatory mitigation is required if wetlands are impacted.

Impacts to wetland areas in Lenoir County were determined using the National Wetlands Inventory Mapping provided by the U.S. Fish and Wildlife Service. It is important to note that this mapping is a best estimate of the approximate location of wetlands. Development was based on aerial photography and has not been field checked. Prior to the design of a facility, a more extensive investigation will be necessary.

Wetlands locations in Lenoir County are mapped in **Figure 9.** Although there will be significant impacts to wetlands from the proposed US 70 Bypass, impacts were avoided or minimized to the greatest extent possible, while preserving the integrity of the Thoroughfare Plan (refer to **Table 8**).

[1]Dahl, T. E., and C. E. Johnson. Status and Trends of Wetlands in the Conterminous United States. United States Department of Interior, Fish and Wildlife Service, Washington, DC 1991.

Threatened and Endangered Species

A preliminary review of the Federally Listed Threatened and Endangered Species within Lenoir County was done to determine the effects that constructing proposed facilities and widening existing facilities could have on the wildlife. These species were identified using mapping from the North Carolina Department of Environment, Health, and Natural Resources.

The Threatened and Endangered Species Act of 1973 allows the U. S. Fish and Wildlife Service to impose measures on the Department of Transportation to mitigate the environmental impacts of a road project on endangered plants and animals and critical wildlife habitats. By locating rare species in the planning stages, we are able to avoid or minimize these impacts.

Seven threatened or endangered species locations were found in the Lenoir County thoroughfare planning area. No proposed improvements are expected to affect the areas in which these are rare species are located, however, further investigation should be done prior to construction.

Historic Sites

The locations of historic sites in Lenoir County were also investigated to determine the possible impacts of the proposed transportation improvements.

The federal government requires all State Departments of Transportation to make special efforts to preserve historic sites. Section 106 of the National Historic Preservation Act requires the Department of Transportation to identify historic properties listed in the National Register of Historic Places and properties eligible to be listed. The Department must consider the impact of its road projects on these properties and consult with the Federal Advisory Council on Historic Preservation.

In addition to the federal guidelines, the State of North Carolina has issued its own guidelines for the preservation of historic sites. The NC General Statute 121-12(a) requires the Department to identify historic properties listed on the National Register, but not necessarily those eligible to be listed. The Department must consider the impacts and consult with the North Carolina Historical Commission, but it is not bound by their recommendations.

There is currently one property, Kennedy Memorial Home, listed on the National Register in the Lenoir County thoroughfare planning area. However, there is a recently identified area of concern, the Battle of Wyse Fork. A preliminary review of this area was conducted by the Planning and Environmental Branch of the North Carolina Department of Transportation. It was determined that this site is potentially eligible for the National Register. Refer to ***Figure 9*** *for the potential historic district boundary and to* ***Table 8 A. and B.*** *for possible effects from the proposed US 70 Bypass.*

Table 8. US 70 Control of Access Alternatives Analysis

A. Section 1: US 70 Business at LaGrange to NC 55								
Corridor	Length (miles)	Cost ($1000)	Wetlands Impacted (acres)	Historical Sites Impacted (#)	Natural Heritage Sites Impacted (#)	Churches Impacted (#)	Homes Impacted (#)	Businesses Impacted (#)
[redacted]	7.62	36,510	50.07	0	0	1	14	10
[redacted]	7.62	36,959	50.07	0	0	1	57	34
[redacted]	7.83	28,165	113.33	0	0	0	2	8
[redacted]	7.88	27,868	63.27	0	0	0	0	8

B. Section 2: NC 55 to US 70 Control of Access in Jones County									
Corridor	Length (miles)	Cost ($1000)	Wetlands Impacted (acres)	Historical Sites Impacted (#)	Natural Heritage Sites Impacted (#)	Churches Impacted (#)	Homes Impacted (#)	Businesses Impacted (#)	Battle of Wyse Fork Impacted (Y or N)
[redacted]	12.65	66,571	63.61	0	0	2	77	21	Y
[redacted]	12.88	66,380	30.30	0	0	2	65	21	Y
[redacted]	12.14	59,580	23.99	0	0	0	52	10	Y
[redacted]	12.19	59,181	31.65	0	0	0	23	7	Y
[redacted]	12.12	59,180	31.65	0	0	0	25	7	N

FIGURE 9

Environmental Issues for Lenoir County



Groundwater Incidents (Statewide)
Non-Discharge System (Statewide)
Solid Waste Facility; Landfills (Statewide)
National Pollutant Discharge Elimination System (NPDES)
Superfund Site (As Point)
Natural Heritage Element Occurrences (2/94) NHEO
Roads (100K TIGER DATA)
Major Railroads (Statewide)
Historic Structures/Districts (Statewide Point)

County Boundary (Statewide 100k)
County Boundary
State Boundary
Shore Line

Major Power/Transmission (Statewide)
Anadromous Fish Spawning Areas (Statewide)
Trout Streams
State Parks (Statewide)
Federal Lands (Statewide)
SRV (APES Pts) Submersed Rooted Vasculars

Fisheries Nursery Areas (Statewide)
.1405 Primary
.1407 Secondary
.1408 Special

Water Supply Intakes (Statewide)

Water Supply Watersheds (Statewide)
Critical
Protected

High Quality Water Zones (Statewide)
High Quality Waters
Outstanding Resource Water

Major Hydrography Lines
Major Hydrography Lines

Major Hydrography (Statewide)
Major Hydrography Polygons

National Wetland Inventory (Eastern)
E1 Estuarine
E2 Estuarine
L1 Lacustrine
L2 Lacustrine
M1 Marine
M2 Marine
P Palustrine
P- Palustrine
R1 Riverine
R2 Riverine
R3 Riverine
R4 Riverine
R5 Riverine
U URBAN
Z OTHER

National Wetland Inventory (Eastern)
E1 Estuarine
E2 Estuarine
L1 Lacustrine
L2 Lacustrine
M1 Marine
M2 Marine
P Palustrine
R1 Riverine
R2 Riverine
R3 Riverine
R4 Riverine
R5 Riverine
U URBAN
Mb

N

1 0 1 2 3 4 Miles

Appendix A

County Thoroughfare Planning Principles

Purpose of Planning

There are many advantages to thoroughfare planning. The primary objective is to assure that the road system will progressively develop to serve future travel needs. By developing a thoroughfare plan, provisions for roadway improvements can be incorporated into policy decisions so that, as the need arises, feasible opportunities to make improvements exist.

There are two major benefits derived from thoroughfare planning. First, each road or highway can be designed to perform a specific function and provide a specific level of service. This permits savings in right-of-way, construction, and maintenance costs. It also protects residential neighborhoods and encourages stability in travel and land use patterns. Second, local officials are informed of future improvements and can incorporate them into planning and policy decisions. This will permit developers to design subdivisions in a non-conflicting manner, direct school and park officials to better locate their facilities, and minimize damage to property and community appearance that is sometimes associated with road improvements.

County Thoroughfare Planning Concept

The purpose of thoroughfare planning is to classify a functional system of roads that provide direct, efficient, and safe travel. Different roads in the county are designed to have specific functions and levels of service, therefore minimizing the conflict between roadway capacity and land development.

In the county thoroughfare plan, roads are designated as either urban or rural. Local municipalities generally have planning jurisdiction over roads within their planning area. The county generally has planning jurisdiction over roads outside the urban planning areas. In those urban areas where no urban thoroughfare plan has been developed, roads are generally designated as rural and under the planning jurisdiction of the county.

Rural Classification System

The county thoroughfare plan is based on the rural classification system. Those facilities that fall outside the urban planning area are classified as principal arterials, minor arterials, collector roads, and local roads. A functionally classified rural highway system is shown in **Figure 10** and described as follows.

Principal Arterials: These roads primarily serve statewide or interstate travel. Principal arterials serve all urban areas with a population greater than 50,000 and the majority of those with a population greater than 5,000. Interstates constitute a significant portion of principal arterials.

Minor Arterials: These roads primarily serve intercounty travel. Minor arterials, along with principal arterials, link cities, larger towns, and other major attractions, such as large resorts.

Collector Roads: These roads generally serve intracounty travel rather than statewide travel. Rural collectors are further divided into major and minor collectors. Major collectors provide service to larger towns not directly served by principal or minor arterials. Minor collectors collect traffic from local roads.

Local Roads: These roads consist of all roads that are not classified as principal arterials, minor arterials, or collector roads. They are often referred to as residential streets.

Urban Classification System

The urban thoroughfare plan is based on the urban classification system. Those facilities that fall inside the urban planning area are classified as interstates/freeways, major thoroughfares, minor thoroughfares, or local access streets. For information on the classifications within an urban area, refer to the respective mutually adoptive thoroughfare plan.

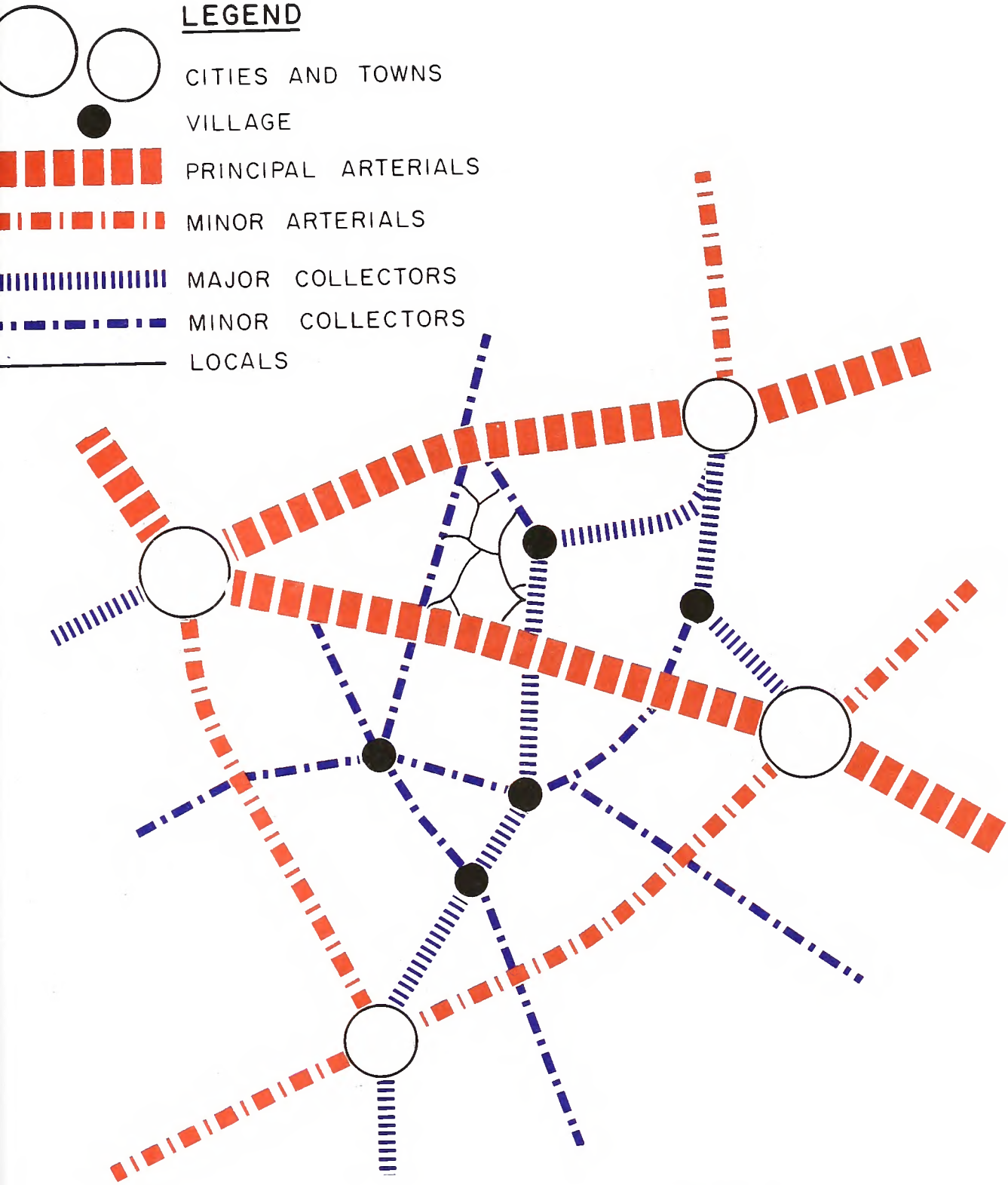


FIGURE 10

SCHEMATIC ILLUSTRATION OF FUNCTIONALLY CLASSIFIED RURAL HIGHWAY NETWORK

Appendix B

Thoroughfare Plan Street Inventory and Recommendations

The following recommendations are based on the "Mutually Adopted Thoroughfare Plan". The 2020 design year traffic volumes reflect the expected traffic patterns assuming a completely implemented plan. Since projects will be constructed in stages, variations in these patterns should be expected. For more detailed information concerning the various cross-sections, refer to Generalized Chapters for the Thoroughfare Plan Reports, prepared by the Statewide Planning Branch of the North Carolina Department of Transportation.

Legend

ADQ - Adequate
Cap - Capacity at Level of Service D
NA - Not available
vpd - Vehicles per Day
ABCD - Proposed Facility
NPAB - Northern Planning Area Boundary
SPAB - Southern Planning Area Boundary
EPAB - Eastern Planning Area Boundary
WPAB - Western Planning Area Boundary

Section	Existing					Proposed			
	Dist (km)	Rdwy (m)	ROW (m)	Cap (vpd)	1994 AADT	Cap (vpd)	2020 AADT	Rdwy Xsect	ROW (m)
US 70									
Wayne Co. - La Grange PAB	2	15.9	61	54000	12000	ADQ	52900	ADQ	ADQ
La Grange PAB - Kinston PAB	7	15.2	61	40000	13600	57000	33600	L	91
Kinston PAB - Jones Co.	3.5	14.6	61	40000	10100	ADQ	14100	ADQ	ADQ
Proposed US 70 Bypass									
La Grange PAB - Crescent Rd. Ext.	**9**	**NA**	**NA**	**NA**	**NA**	**54000**	**23400**	**A**	**70**
Crescent Rd. Ext. - NC 55/11	**4**	**NA**	**NA**	**NA**	**NA**	**54000**	**38100**	**A**	**70**
NC 55/11 - US 258	**2**	**NA**	**NA**	**NA**	**NA**	**54000**	**29600**	**A**	**70**
US 258 - NC 58	**6**	**NA**	**NA**	**NA**	**NA**	**54000**	**20500**	**A**	**70**
NC 58 - Jones County	**4.5**	**NA**	**NA**	**NA**	**NA**	**54000**	**23000**	**A**	**70**
US 258									
Greene Co. - Kinston NPAB	2.5	7.2	30	11000	6700	33000	24300	F w/ shoulders	33
Kinston SPAB - SR 1141	5	6.7	30	10000	5900	33000	12500	F w/ shoulders	33
SR 1141 - SR 1116	10	6.7	30	10000	4400	33000	9500	F w/ shoulders	33
SR 1116 - Jones Co.	3	6.7	30	10000	3900	33000	8500	F w/ shoulders	33
NC 11									
Grifton SPAB - Kinston EPAB	7.5	13.4	45	40000	13900	57000	45900	L	91
Kinston SPAB - SR 1143	11	6.7	30	10000	6700	33000	12900	F w/ shoulders	33
SR 1143 - SR 1121	2	6.7	30	10000	5900	33000	11500	F w/ shoulders	33
SR 1121 - Pink Hill NPAB	6	6.7	30	10000	4900	33000	9900	F w/ shoulders	33
NC 55									
Wayne Co. - SR 1154	10.5	7.2	18	11000	2200	ADQ	5300	ADQ	ADQ
SR 1154 - Kinston SPAB	6.5	7.2	18	11000	3300	ADQ	7800	ADQ	ADQ
Kinston EPAB - SR 1807	3.3	7.2	18	11000	3600	ADQ	7000	ADQ	ADQ
SR 1807 - Craven Co.	3.3	7.2	18	11000	1900	ADQ	3700	ADQ	ADQ
NC 58									
Kinston SPAB - SR 1913	1.5	7.2	18	11000	5100	33000	10700	F	33
SR 1913 - Jones Co.	8.5	7.2	18	11000	3300	ADQ	7100	ADQ	ADQ
NC 903									
Greene Co. - La Grange NPAB	7	6.1	18	10000	1400	11000	3000	K	ADQ
La Grange SPAB - Duplin Co.	14	6.1	18	10000	1300	11000	2500	K	ADQ
Proposed Perimeter Rd.									
Greene Co. - US 258		**NA**	**NA**	**NA**	**NA**	**54000**	**15800**	**A**	**70**
Brothers Rd. (SR 1514)									
La Grange NPAB - SR 1532	5.5	6.1	18	10000	1000	11000	2400	K	ADQ
Grifton-Hugo Rd. (SR 1091)									
Greene Co. - Grifton	7.8	5.5	18	8000	1000	11000	2400	K	ADQ

Section	Existing					Proposed			
	Dist (km)	Rdwy (m)	ROW (m)	Cap (vpd)	1994 AADT	Cap (vpd)	2020 AADT	Rdwy Xsect	ROW (m)
Harold Hall Rd. (SR 1728) Kinston NPAB - SR 1004	1.3	4.9	18	9000	100	ADQ	200	ADQ	ADQ
Hugo Rd. (SR 1004) Greene Co. - SR 1703	8.5	6.1	18	10000	2100	11000	5100	K	ADQ
Institute Rd. (SR 1541) SR 1532 - US 258	4.3	5.5	18	9000	1400	11000	3400	K	ADQ
John Green Smith (SR 1141) NC 11 - US 258	8.5	5.5	NA	8000	1200	11000	2300	K	ADQ
Jonestown Rd. (SR 1116) NC 11 - US 258	8	5.5	NA	8000	600	ADQ	1100	ADQ	ADQ
Kennedy Home Rd. (SR 1324) SR 1309 - US 70	10.5	5.5	NA	8000	1300	11000	2500	K	ADQ
Lidell Rd. (SR 1143) SR 1154 - NC11	5.5	6.1	NA	10000	900	11000	1800	K	ADQ
Mosely Creek Rd. (SR 1327) La Grange EPAB - SR 1001	3.3	6.1	18	10000	2000	11000	4900	K	ADQ
Neuse Rd. (SR 1804) NC 55 - US 70	9.5	6.1	18	10000	1900	11000	3600	K	ADQ
Pauls Path Rd. (SR 1001) Greene Co. - SR 1514 SR 1514 - Kinston EPAB	 4.3 8	 5.5 5.5	 18 18	 8000 8000	 300 2900	 11000 11000	 800 8400	 K K	 ADQ ADQ
Smith-Grady Road (SR 1152) SR 1324 - NC 11	15.5	5.5	18	8000	500	ADQ	1000	ADQ	ADQ
Vine Swamp Rd. (SR 1922) Jones Co. - NC 58	8	6.1	18	10000	600	ADQ	1100	ADQ	ADQ
Wilson Rd. (SR 1532) Greene Co. - SR 1541	4	6.1	NA	10000	400	ADQ	1000	ADQ	ADQ
Woodington Rd. (SR 1909) US 258 - NC 58	6.5	6.1	18	10000	600	ADQ	1100	ADQ	ADQ

Typical cross section recommendations are shown in **Figure 11.** These cross sections are typical for facilities on new location and where right-of-way constraints are not critical. For widening projects and urban projects with limited right-of-way, special cross sections should be developed that meet the needs of the project.

Cross section "A" is typical for controlled access freeways. The 14 m (46') grassed median is the minimum desirable median width. Right-of-way requirements would typically vary upward from 70 m (228') depending upon cut and fill requirements.

Cross section "B" is typical for four lane divided highways in rural areas which may have only partial or no control of access. The minimum median width for this cross section is 14 m (46'). Design requirements for slopes and drainage would be similar to cross section "A".

Cross section "C", seven lane urban, should be used only in special situations such as when widening from a five lane section on limited right-of-way. Even in these situations, consideration should be given to converting the center turn lane to a median so that cross section "E" is the final cross section.

Cross section "D", five lane urban, is typical for major thoroughfares where frequent left turns are anticipated as a result of abutting development or frequent street intersections.

Cross sections "E" and "F" are used on major thoroughfares where left turns and intersecting streets are not as frequent. Left turns would be restricted to a few selected intersections.
The minimum median width recommended is 4.8 m (16') median.

Cross section "G" is recommended for urban boulevards or parkways to enhance the urban environment and to improve the compatibility of major thoroughfares with residential areas. A minimum median width of 7.3 m (24') is recommended with 9.1 m (30') being desirable.

Cross section "H" is recommended for major thoroughfares where projected travel indicates a need for four travel lanes but traffic is not excessively high, left turning movements are light, and right-of-way is restricted.

Cross section "I" is recommended for thoroughfares which are proposed to function as one-way traffic carriers in urban environments.

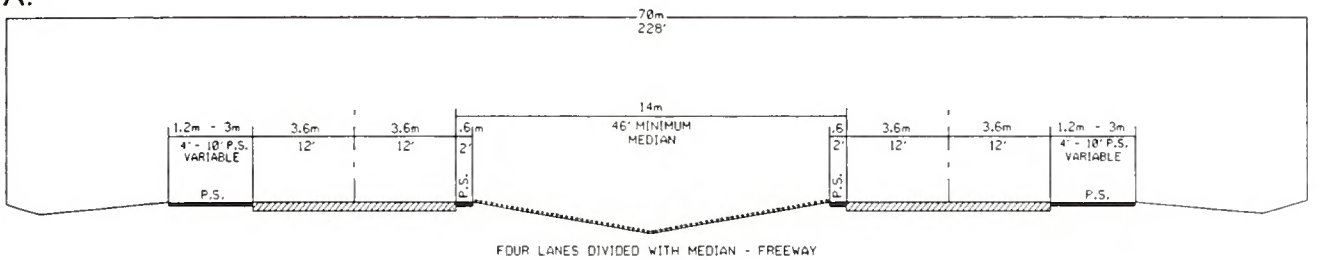
Cross sections "J" and "K" are usually recommended for urban minor thoroughfares serving both land service and traffic service functions. Cross section "J" would be used on those minor thoroughfares where parking on both sides is needed as a result of more intense development.

Cross section "L" is used in rural areas or for staged construction of a wider multi-lane cross section. For areas that are growing and future widening will be necessary, the full right-of-way of 30 m (100') should be required. In some instances, local ordinances may not allow the full 30 m (100'). In those cases, 21 m (70') should be preserved with the understanding that the full 30 m (100') will be preserved by use of building setbacks and future street line ordinances.

Cross sections O, P and Q are typically used to accommodate bicycle travel.

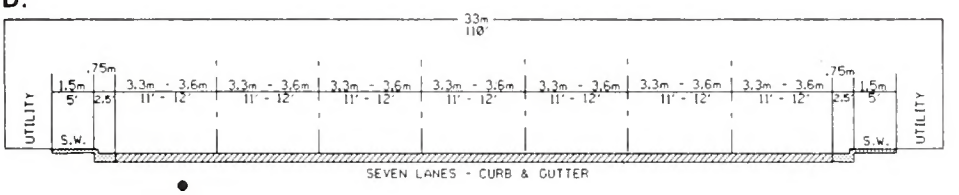
TYPICAL THOROUGHFARE CROSS SECTIONS

A.



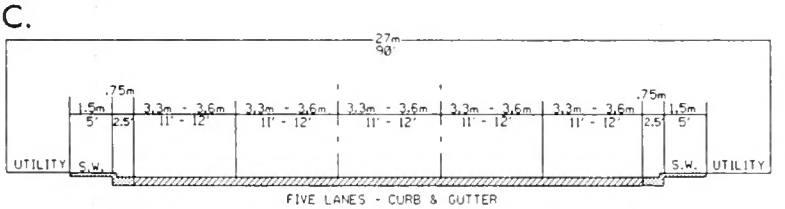
FOUR LANES DIVIDED WITH MEDIAN - FREEWAY

B.



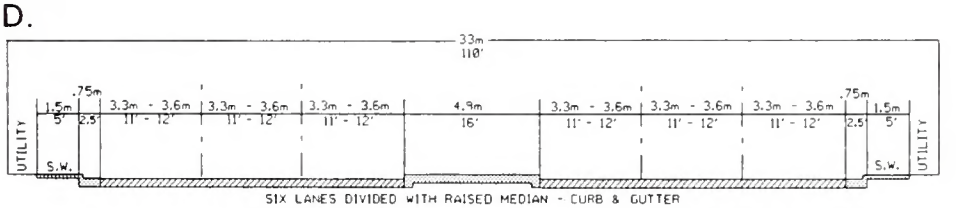
SEVEN LANES - CURB & GUTTER

C.



FIVE LANES - CURB & GUTTER

D.

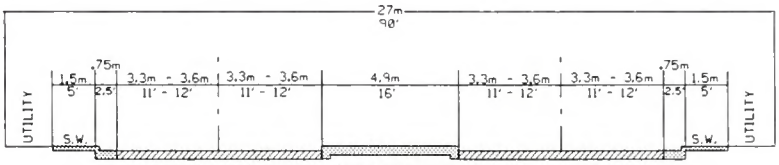


SIX LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER

FIGURE 11

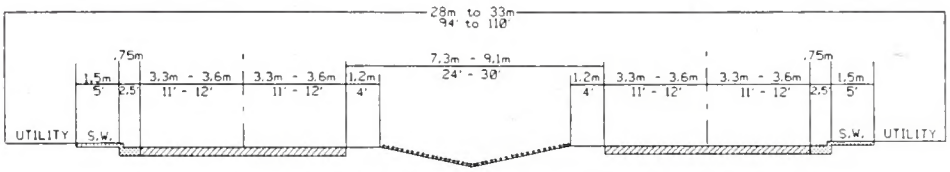
TYPICAL THOROUGHFARE CROSS SECTIONS

E.



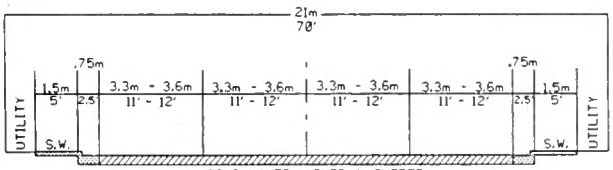
FOUR LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER

F.



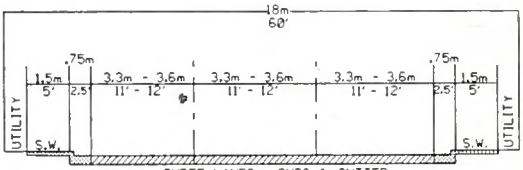
FOUR LANES DIVIDED - BOULEVARD
GRASS MEDIAN

G.



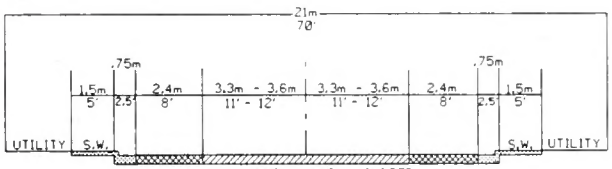
FOUR LANES - CURB & GUTTER

H.



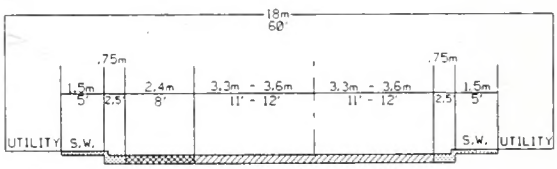
THREE LANES - CURB & GUTTER

I.



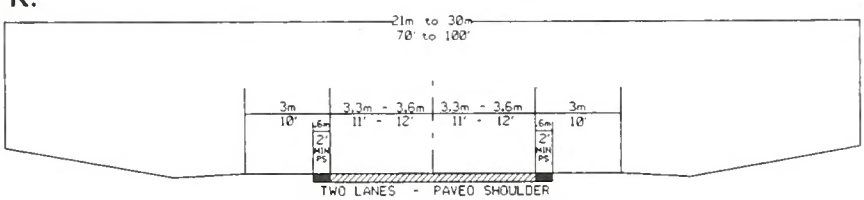
TWO LANES - CURB & GUTTER
PARKING ON EACH SIDE

J.



TWO LANES - CURB & GUTTER
PARKING ON ONE SIDE

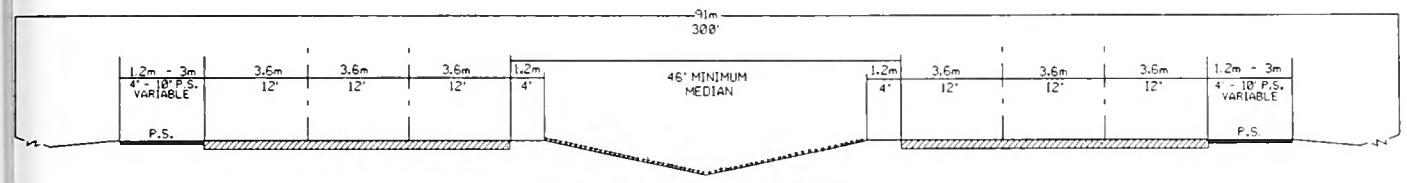
K.



TWO LANES - PAVED SHOULDER

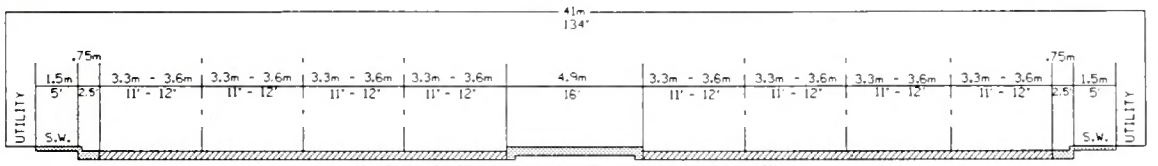
TYPICAL THOROUGHFARE CROSS SECTIONS

L.



SIX LANES DIVIDED WITH GRASS MEDIAN - FREEWAY

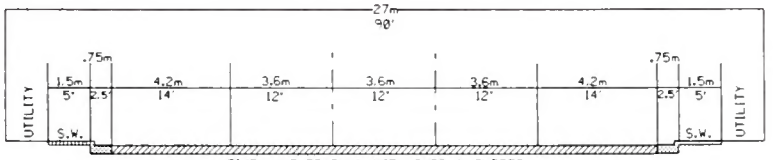
M.



EIGHT LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER

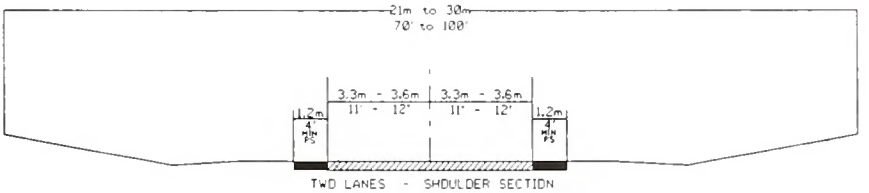
TYPICAL THOROUGHFARE CROSS SECTIONS FOR ACCOMMODATING BICYCLES

N.



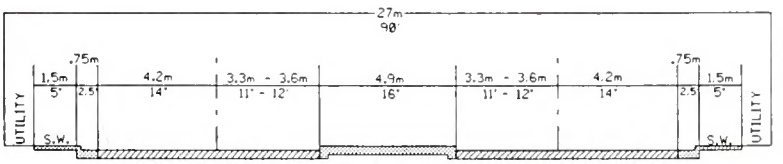
FIVE-LANE ROADWAY WITH CURB & GUTTER,
STANDARD INSIDE LANES & WIDENED CURB LANES

O.



TWO LANES - SHOULDER SECTION

P.



FOUR LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER,
STANDARD INSIDE LANES & WIDENED CURB LANES

Appendix C

Public Involvement

In 1995 Lenoir County and the Statewide Planning Branch of the North Carolina Department of Transportation began working cooperatively to develop the Lenoir County Thoroughfare Plan. Shannon Lassiter, Transportation Engineer, Statewide Planning Branch, initiated this process.

On January 11, 1995, a meeting was held with Lynne James of the Lenoir County Planning Department to discuss local transportation issues. These issues included concerns about several TIP projects: Perimeter Road (R-3331); Proposed US 70 Bypass (R-2553); and Crescent Road (R-2719).

On February 6, 1995, a presentation was made at the Lenoir County Board of Commissioners meeting. The steps involved in the development of a thoroughfare plan were discussed. Opportunities available for public involvement during the process and related plans and projects were emphasized.

On March 16, 1995, Mr. Lassiter met with the Lenoir County Planning Board to review the thoroughfare planning process, discuss environmental and political issues, and solicit input on future land use.

Due to turnover at both the local and state level further work on the plan was delayed until the Summer of 1996. At this time, Anna Brigman, Transportation Engineer, Statewide Planning Branch assumed responsibility for the project and contacted Bob Snapp, Manager, Lenoir County.

On August 1, 1996, the development of a Lenoir County Thoroughfare Plan was revisited at the Lenoir County Planning Board meeting. Due to the large lapse in time between meetings, what a thoroughfare plan is and why it is important was reviewed. The Lenoir County Functional Classification System, existing and projected AADT's, and capacity deficiencies on the existing road system were also presented. The presentation closed with discussion of various public involvement options. The Planning Board opted to forego distribution of a goals and objectives survey and to revisit other options at a later date.

On September 26, 1996, a joint Planning Board and Board of Commissioners meeting was held. Information presented at the August 1st meeting was revisited for benefit of the County Commissioners. In addition existing TIP projects and other possible recommendations to relieve future year capacity deficiencies were discussed. The meeting closed with discussion of several local concerns: truck traffic on NC 55; possible extension of Crescent Road to NC 11 and then to US 70; access control of US 70; and several concerns within the City of Kinston (Carey Road extension, Tiffany Street extension, and truck traffic along Hardee Road).

Following the September 26th meeting 2 Planning Board meetings, 1 County Commissioners meeting, and 2 County Transportation Committee meetings were held. Each meeting centered around the concerns expressed at the September 26th meeting. The following summarizes the outcome of research into the concerns and the subsequent meetings.

- **Access control of US 70 through Lenoir County**

  Approach: Originally the Statewide Planning Branch planned to look at several alignments through the phased environmental process. (A process where we look at the social, economical, historical, environmental, and endangered species impacts in cooperation with the environmental agencies.) However in April, 1997, the Planning and Environmental Branch advised the Statewide Planning Branch that the EIS process for the current TIP project (R-2553) would begin within the next few months. As indicated, the contract was awarded in early August. This eliminates the need for a "full-fledged" Phased Environmental study, however it still does not address full control of access along US 70 through Lenoir County. To ensure that a full control of access facility is addressed from a systems standpoint, a preliminary environmental screening was completed on several corridors.

  Recommendation: Refer to **Figure 9**. Contact the Planning and Environmental Branch for the most up to date information on this corridor.

- **Truck Traffic on NC 55**

  Approach: Checked truck percentages along facility from 10:40 am to 10:55 am on Friday, November 1, 1996 at Webb United Methodist Church and Greene Haynes Road, SR 1161 (11 duals and TTST's; 45 cars; yields 19.6% trucks)

  Recommendation: Construct 2 ft. paved shoulders

- **Possible extension of Crescent Road project to NC 11 and then to US 70**

  Approach: Checked projected 2020 traffic volumes using the Kinston transportation computer model. (20,000 vpd from NC 58 to NC 11; 6,000 vpd from NC 11 to US 70).

  Recommendation: These volumes warrant: A 4-lane divided with full control of access from NC 58 to NC 11 and a 2-lane divided with full control of access on 4-lane divided right of way from NC 11 to US 70. However, this corridor will be considered in the Kinston thoroughfare plan update as part of the proposed NC 58 freeway on new location between Wilson and Kinston (TIP R-3102). Because of the location of the Battle of Wyse Fork Civil War battlefield at US 70, it may be necessary to move the recommended corridor into the Kinston thoroughfare planning

area. If at a later date, it is found that the recommended corridor should and could be moved further east, the Lenoir County Thoroughfare Plan can be revised to include the new corridor location.

- **Carey Road Extension, Tiffany Street Extension, and truck traffic along Hardee Road**

  Recommendation: Address these concerns at the Kinston Thoroughfare Plan meetings.

Each of these meetings were ended with a discussion of public involvement opportunities. Because numerous public meetings had been held throughout the process (all Planning Board and County Commissioner meetings) at which no comments were received from the public, the Lenoir County Planning Board and Board of Commissioners opted to simply hold a Public Hearing.

On February 2, 1998 a public hearing was held on the Recommended Lenoir County Thoroughfare Plan dated November 3, 1997. A brief presentation was made to the Board and the public. No comments were received. The Plan was adopted unanimously. Subsequently, the North Carolina Board of Transportation adopted the Plan on June 5, 1998.

111 Tyree Road
Kinston, NC 28501
September 25, 1996

Mr. George Graham, Chairman
Lenoir County Commissioners
P. O. Box 1082
Kinston, NC 28501

Dear Mr. Graham:

The recent closing of the Pink Hill Hwy. due to flooding points to the fact that more than one major traffic access is needed from the south side of Kinston. The congestion and delays caused by re-routing traffic on Tyree Road, Central Avenue and Richlands Road (U.S. 258) were next to impossible and required help from the NC Highway Patrol for several days. A significant part of Kinston's workforce comes from south of Kinston.

The right-of-way for this project was purchased in 1951, beginning at US 70 Bypass and continuing as far as the intersection of Tyree Road. Some parts of this have already been evidenced but not fully completed.

If there were a major catastrophe or a national emergency in this area, our county would be paralyzed by blocked traffic. We also know that the G. T. P. runways would be utilized for military functions by our coastal bases entering by US 258.

Please consider changing the priority of this highway improvement project to widen U.S. 258 at least as far as Tyree Road. Thank you for your consideration.

Sincerely,

Reginald Stroud

Reginald Stroud

jjg
c: All Commissioners
Bob Snapp
Jim Godfrey

Appendix D

Urban Thoroughfare Plans in Lenoir County

1997 Grifton Thoroughfare Plan
1981 Kinston Urban Area Thoroughfare Plan[1,2]
1993 LaGrange Thoroughfare Plan
1992 Pink Hill Thoroughfare Plan[1]

[1]Currently Under Study
[2]Updated in 1992 but not adopted



LEGEND

	EXISTING	PROPOSED
Major Thoroughfare	▬▬▬	▪ ▪ ▪ ▪
Minor Thoroughfare	———	- - - -
Long Range Proposal	▮▮▮▮▮▮▮▮▮▮	

ADOPTED BY:

TOWN OF GRIFTON	8-12-97
PUBLIC HEARING PUBLIC INFORMATION WORKSHOP	8-12-97 8-12-97
RECOMMENDED BY STATEWIDE PLANNING	10-3-97
N.C. DEPARTMENT OF TRANSPORTATION	10-3-97

N

S

July 8, 1997

FIGURE 12

1997 THOROUGHFARE PLAN



GRIFTON

Pitt and Lenoir Counties

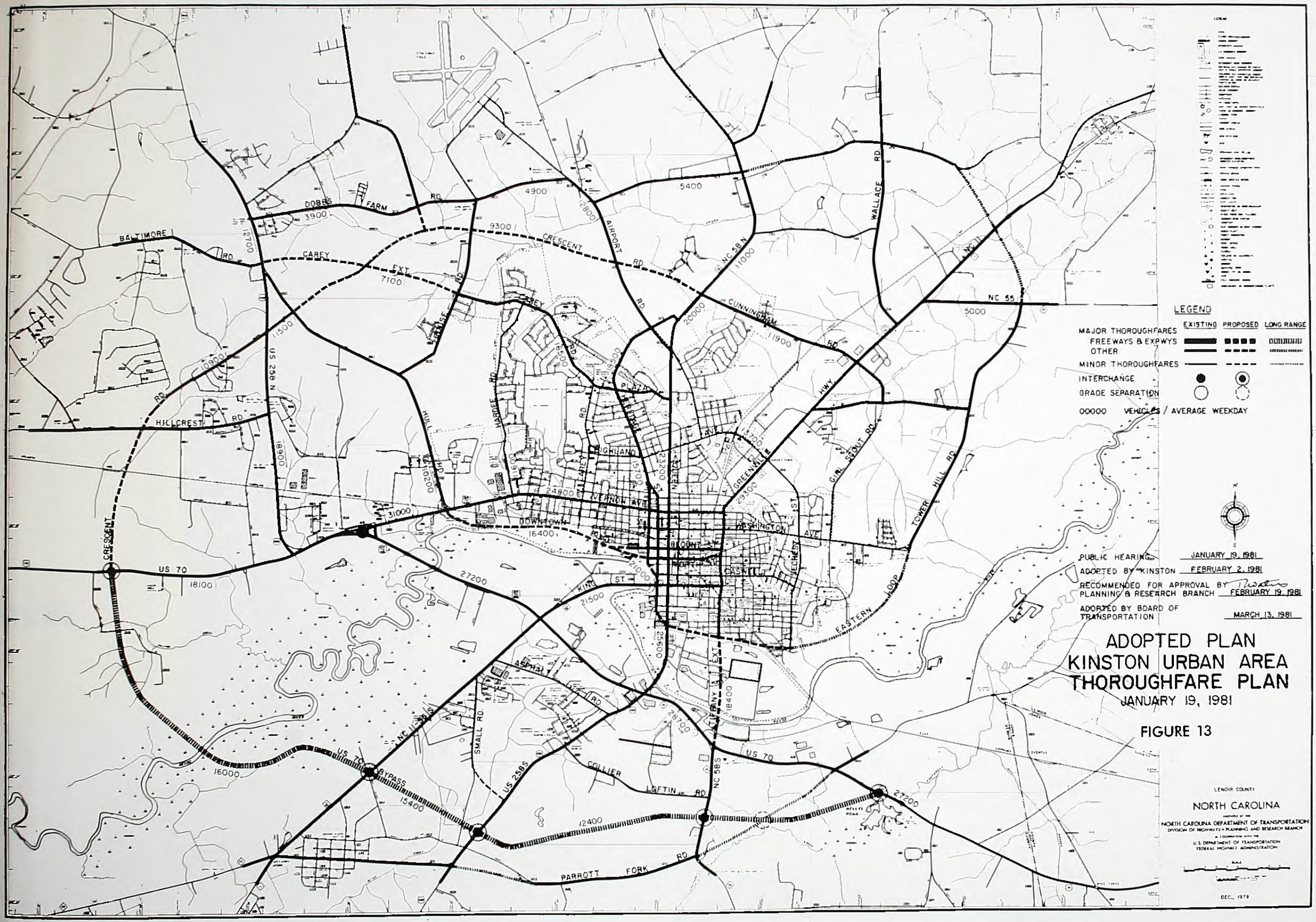
NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - GIS UNIT

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE




LEGEND
EXISTING
PROPOSED
LONG RANGE
MAJOR THOROUGHFARES
FREEWAYS & EXPWYS
OTHER
MINOR THOROUGHFARES
INTERCHANGE
GRADE SEPARATION
00000 VEHICLES / AVERAGE WEEKDAY
PUBLIC HEARING JANUARY 19, 1981
ADOPTED BY KINSTON FEBRUARY 2, 1981
RECOMMENDED FOR APPROVAL BY PLANNING & RESEARCH BRANCH FEBRUARY 19, 1981
ADOPTED BY BOARD OF TRANSPORTATION MARCH 13, 1981
ADOPTED PLAN
KINSTON URBAN AREA
THOROUGHFARE PLAN
JANUARY 19, 1981
FIGURE 13
LENOIR COUNTY
NORTH CAROLINA
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - PLANNING AND RESEARCH BRANCH
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
DEC., 1979
BALTIMORE RD
CAREY
EXT
DOBBS FARM RD
CRESCENT
AIRPORT RD
WALLACE RD
NC 55
CUNNINGHAM RD
HILLCREST RD
US 258 N
HARDEE RD
HULL RD
CAREY RD
HIGHLAND AVE
GREENVILLE AVE
GIN SPOUT RD
TOWER HILL RD
NEUSE
NORTH
VERNON AVE
DOWNTOWN
WASHINGTON AVE
BLOUNT
CASWELL
SECREST
1ST
KING ST
EASTERN LOOP
TIFFANY BLVD EXT
US 70
NC 58 S
SMALL RD
ASPHALT RD
US 258 S
COLLIER
LOFTIN RD
PARROTT FORK RD
BYPASS

LAGRANGE
NORTH CAROLINA

THOROUGHFARE PLAN

FIGURE 14

LEGEND

	EXISTING	PROPOSED
MAJOR	———	- - -
MINOR	———	- - -

ADOPTED BY:

TOWN OF LAGRANGE	DECEMBER 6, 1993
STATEWIDE PLANNING BRANCH	DECEMBER 10, 1993
N.C.D.O.T.	JANUARY 7, 1994

REVISIONS

TOWN OF LAGRANGE	STATEWIDE PLANNING BRANCH	N.C.D.O.T.

DATE
OCTOBER 21, 1993

LAGRANGE
NORTH CAROLINA
LENOIR COUNTY

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
IN COOPERATION WITH
U.S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

0 1000 2000
1" = 1000'

US -70

LENOIR COUNTY

FIGURE 15

PINK HILL
THOROUGHFARE PLAN
March 11, 1992

LEGEND

MAJOR THOROUGHFARE

MINOR THOROUGHFARE

ADOPTED BY:

THE TOWN OF PINK HILL MARCH 10, 1992

NCDOT STATEWIDE PLANNING JULY 21, 1992

NC DEPT. OF TRANSPORTATION AUGUST 14, 1992

PINK HILL

LENOIR COUNTY

NORTH CAROLINA

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS-STATEWIDE PLANNING BRANCH

IN COOPERATION WITH

U.S. DEPARTMENT OF TRANSPORTATION

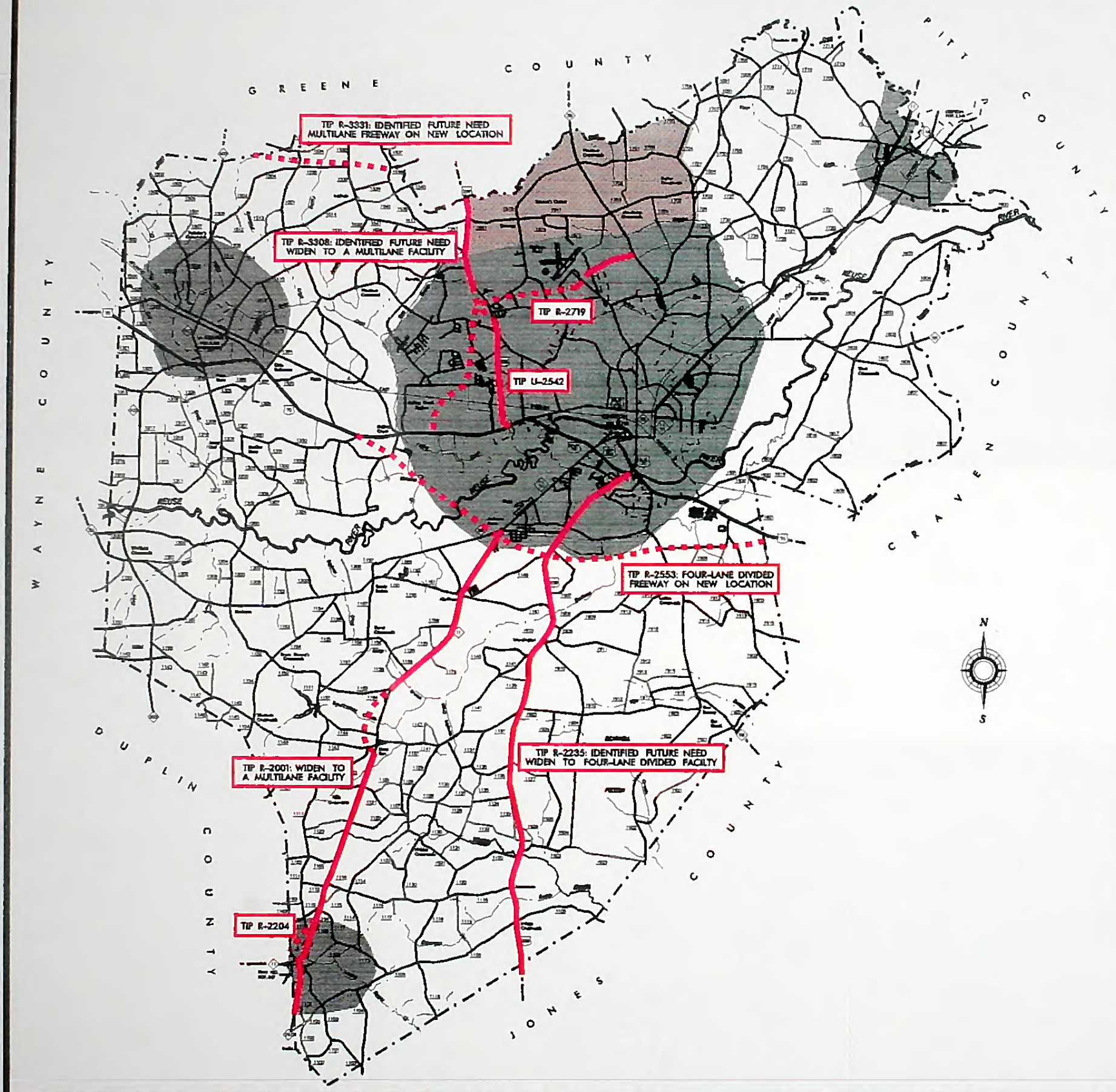
FEDERAL HIGHWAY ADMINISTRATION

SCALE

0 800' 1600'

Appendix E

TIP Project Locations



LEGEND

- TIP PROJECT (WIDENING)
- TIP PROJECT (NEW LOCATION)
- URBAN PLANNING AREA BOUNDARY
- GLOBAL TRANSPARK BOUNDARY

FIGURE 16

TIP PROJECT LOCATIONS



LENOIR COUNTY
NORTH CAROLINA

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - GIS UNIT

IN COOPERATION WITH THE

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALES

2 1 0 2 4 6
miles

2 0 2 6 10
kilometers

Appendix F

Index of Secondary Road Numbers

SR 1001	Pauls Path Road
SR 1004	Hugo Road
SR 1091	Grifton-Hugo Road
SR 1116	Jonestown Road
SR 1141	John Green Smith
SR 1143	Lidell Road
SR 1152	Hardy Bridge Road
SR 1324	Kennedy Home Road
SR 1327	Mosely Creek Road
SR 1514	Brothers Road
SR 1532	Wilson Road
SR 1541	Institute Road
SR 1703	Taylor-Heath Road
SR 1728	Harold Hall Road
SR 1804	Neuse Road
SR 1909	Woodington Road
SR 1922	Vine Swamp Road

Appendix G

Glossary of Technical Terms

Average Daily Traffic Count (ADT) - Traffic counts taken by the North Carolina Department of Transportation.

Capacity - The maximum number of vehicles a particular road can handle.

Facility - A road.

Level of Service D (LOS D) - The "practical capacity", or that at which the public begins to express dissatisfaction.

Major Collector - A facility serving primarily intracounty travel and providing service to larger towns not directly serviced by principal or minor arterials.

Major Thoroughfare - A facility which carries high volumes of traffic within and through an urban planning area.

Minor Arterial - A facility serving primarily intercounty travel.

Minor Collector - A facility that collects traffic from local roads.

Minor Thoroughfare - A urban facility which collects traffic from local access streets and carries it to major thoroughfares.

Planning Area Boundary (PAB) - The boundary delineating the current city limits and the outlying areas that are projected to develop by the design year.

Principal Arterial - A facility serving primarily statewide or interstate travel.

Traffic Zone - Subsections of the planning area that are used to connect and define land use values to the transportation network.

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